Milliman
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November 2017

Amity Fire District/2742
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Amity Fire District -- #2742

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Amity Fire District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Amity Fire District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Amity Fire District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	21.58%	14.84%	21.58%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(5.95%)	(5.95%)	(5.95%)	(5.95%)	(5.95%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.18%**	**19.44%**	**26.18%**	**13.09%**	**17.82%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.67%**	**19.93%**	**26.67%**	**13.51%**	**18.24%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Amity Fire District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$223,504	$153,721
Allocated pre-SLGRP pooled liability/(surplus)	(15,684)	(13,194)
Transition liability/(surplus)	(55,501)	(57,022)
Allocated pooled OPSRP UAL	17,848	11,411
Side account	0	0
Net unfunded pension actuarial accrued liability	170,167	94,916
Combined valuation payroll	103,672	80,264
Net pension UAL as a percentage of payroll	164%	118%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(5.95%)	(7.48%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($14)	$390
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	67,204	14,879	21.37%	63,958	13,668
Tier 2 Police & Fire	19.73%	20,422	4,029	18.95%	10,459	1,982
Total Police & Fire		**87,626**	**18,908**		**74,417**	**15,650**
Total		**$87,626**	**$18,908**		**$74,417**	**$15,650**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**21.58%**			**21.03%**
Aggregate (Default)			**21.58%**			**21.03%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($57,022)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.43%)
B. Actual employer payroll	51,136
C. Payment to transition liability/(surplus)	(2,777)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.43%)
B. Actual employer payroll	48,186
C. Payment to transition liability/(surplus)	(2,616)
4. Supplemental payment to transition liability	0
5. Interest	(3,872)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($55,501)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(55,501)	(57,022)
2. Combined valuation payroll	103,672	80,264
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.95%)**	**(7.48%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	**Continuing**	**Total**
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	103,672	80,264
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Arch Cape Water-Sanitary District/2631
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Arch Cape Water-Sanitary District/2631

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Arch Cape Water-Sanitary District -- #2631

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Arch Cape Water-Sanitary District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Arch Cape Water-Sanitary District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Arch Cape Water-Sanitary District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.66%)	(5.66%)	(5.66%)	(5.66%)	(5.66%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**19.11%**	**19.11%**	**27.23%**	**15.06%**	**19.79%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**19.60%**	**19.60%**	**27.72%**	**15.48%**	**20.21%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Arch Cape Water-Sanitary District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$288,199	$223,001
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(68,042)	(68,964)
Allocated pooled OPSRP UAL	23,015	16,553
Side account	0	0
Net unfunded pension actuarial accrued liability	243,172	170,590
Combined valuation payroll	133,681	116,438
Net pension UAL as a percentage of payroll	182%	147%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.66%)	(6.23%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($18)	$565
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	70,266	8,811	12.26%	67,935	8,329
Total General Service		**70,266**	**8,811**		**67,935**	**8,329**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$70,266**	**$8,811**		**$67,935**	**$8,329**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($68,964)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.34%)
B. Actual employer payroll	47,632
C. Payment to transition liability/(surplus)	(2,544)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.34%)
B. Actual employer payroll	58,520
C. Payment to transition liability/(surplus)	(3,125)
4. Supplemental payment to transition liability	0
5. Interest	(4,747)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($68,042)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(68,042)	(68,964)
2. Combined valuation payroll	133,681	116,438
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.66%)**	**(6.23%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	133,681	116,438
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Aumsville Rural Fire Protection District/2602
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Aumsville Rural Fire Protection District/2602

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Aumsville Rural Fire Protection District -- #2602

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Aumsville Rural Fire Protection District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Aumsville Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Aumsville Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.47%)	(6.47%)	(6.47%)	(6.47%)	(6.47%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.30%**	**18.30%**	**26.42%**	**14.25%**	**18.98%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**18.79%**	**18.79%**	**26.91%**	**14.67%**	**19.40%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Aumsville Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$464,274	$425,231
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(125,324)	(127,672)
Allocated pooled OPSRP UAL	37,076	31,565
Side account	0	0
Net unfunded pension actuarial accrued liability	376,026	329,124
Combined valuation payroll	215,353	222,031
Net pension UAL as a percentage of payroll	175%	148%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.47%)	(6.05%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($29)	$1,078
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) **RHIPA**	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	69,271	8,687	12.26%	0	0
Total General Service		**69,271**	**8,687**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	60,907	13,016
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**60,907**	**13,016**
Total		**$69,271**	**$8,687**		**$60,907**	**$13,016**
Employer normal cost rate						
General Service			**12.54%**			**14.81%**
Police & Fire			**20.66%**			**21.37%**
Aggregate (Default)			**12.54%**			**21.37%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($127,672)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(6.04%)
B. Actual employer payroll	99,877
C. Payment to transition liability/(surplus)	(6,033)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(6.04%)
B. Actual employer payroll	83,759
C. Payment to transition liability/(surplus)	(5,059)
4. Supplemental payment to transition liability	0
5. Interest	(8,744)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($125,324)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(125,324)	(127,672)
2. Combined valuation payroll	215,353	222,031
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(6.47%)**	**(6.05%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	215,353	222,031
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Aurora Rural Fire Protection District/2804
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Aurora Rural Fire Protection District/2804

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Aurora Rural Fire Protection District -- #2804

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Aurora Rural Fire Protection District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Aurora Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Aurora Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	19.73%	14.84%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(10.73%)	(10.73%)	(10.73%)	(10.73%)	(10.73%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.23%**	**16.34%**	**21.23%**	**9.99%**	**14.72%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**21.72%**	**16.83%**	**21.72%**	**10.41%**	**15.14%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Aurora Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$654,681	$582,779
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(292,951)	(301,058)
Allocated pooled OPSRP UAL	52,281	43,259
Side account	0	0
Net unfunded pension actuarial accrued liability	414,011	324,980
Combined valuation payroll	303,673	304,293
Net pension UAL as a percentage of payroll	136%	107%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(10.73%)	(10.41%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($41)	$1,478
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	77,095	15,211	18.95%	82,192	15,575
Total Police & Fire		**77,095**	**15,211**		**82,192**	**15,575**
Total		**$77,095**	**$15,211**		**$82,192**	**$15,575**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**19.73%**			**18.95%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($301,058)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(9.82%)
B. Actual employer payroll	144,153
C. Payment to transition liability/(surplus)	(14,156)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(9.82%)
B. Actual employer payroll	146,533
C. Payment to transition liability/(surplus)	(14,389)
4. Supplemental payment to transition liability	0
5. Interest	(20,438)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($292,951)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(292,951)	(301,058)
2. Combined valuation payroll	303,673	304,293
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(10.73%)**	**(10.41%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	303,673	304,293
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Baker County Library District/2728
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Baker County Library District/2728

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Baker County Library District -- #2728

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Baker County Library District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Baker County Library District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Baker County Library District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.77%	15.77%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.03%)	(2.03%)	(2.03%)	(2.03%)	(2.03%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.97%**	**25.97%**	**30.86%**	**18.69%**	**23.42%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.46%**	**26.46%**	**31.35%**	**19.11%**	**23.84%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Baker County Library District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,061,746	$1,066,310
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(90,095)	(94,967)
Allocated pooled OPSRP UAL	84,788	79,152
Side account	0	0
Net unfunded pension actuarial accrued liability	1,056,439	1,050,495
Combined valuation payroll	492,490	556,765
Net pension UAL as a percentage of payroll	215%	189%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.03%)	(1.79%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($67)	$2,703
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$137,366	$24,012	17.55%	$131,985	$23,163
Tier 2 General Service	12.54%	73,022	9,157	12.26%	112,594	13,804
Total General Service		**210,388**	**33,169**		**244,579**	**36,967**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$210,388**	**$33,169**		**$244,579**	**$36,967**
Employer normal cost rate						
General Service			**15.77%**			**15.11%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.77%**			**15.11%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($94,967)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(2.20%)
B. Actual employer payroll	258,745
C. Payment to transition liability/(surplus)	(5,692)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(2.20%)
B. Actual employer payroll	248,430
C. Payment to transition liability/(surplus)	(5,466)
4. Supplemental payment to transition liability	0
5. Interest	(6,286)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($90,095)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(90,095)	(94,967)
2. Combined valuation payroll	492,490	556,765
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.03%)**	**(1.79%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	492,490	556,765
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Baker County/2021
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Baker County/2021

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Baker County -- #2021

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Baker County to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Baker County.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Baker County

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.91%	13.79%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.72%)	(4.72%)	(4.72%)	(4.72%)	(4.72%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.42%**	**21.30%**	**27.24%**	**16.00%**	**20.73%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.91%**	**21.79%**	**27.73%**	**16.42%**	**21.15%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Baker County

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$11,032,754	$10,049,267
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,173,318)	(2,251,187)
Allocated pooled OPSRP UAL	881,046	745,954
Side account	0	0
Net unfunded pension actuarial accrued liability	9,740,482	8,544,034
Combined valuation payroll	5,117,533	5,247,140
Net pension UAL as a percentage of payroll	190%	163%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.72%)	(4.51%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($697)	$25,478
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$339,148	$59,283	17.55%	$495,837	$87,019
Tier 2 General Service	12.54%	1,001,065	125,534	12.26%	983,829	120,617
Total General Service		**1,340,213**	**184,817**		**1,479,666**	**207,636**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	744,227	146,836	18.95%	767,934	145,523
Total Police & Fire		**744,227**	**146,836**		**767,934**	**145,523**
Total		**$2,084,440**	**$331,653**		**$2,247,600**	**$353,159**
Employer normal cost rate						
General Service			**13.79%**			**14.03%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**15.91%**			**15.71%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($2,251,187)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.30%)
B. Actual employer payroll	2,484,457
C. Payment to transition liability/(surplus)	(106,832)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.30%)
B. Actual employer payroll	2,852,652
C. Payment to transition liability/(surplus)	(122,664)
4. Supplemental payment to transition liability	0
5. Interest	(151,627)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,173,318)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(2,173,318)	(2,251,187)
2. Combined valuation payroll	5,117,533	5,247,140
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(4.72%)**	**(4.51%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	5,117,533	5,247,140
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Baker Valley Irrigation District/2601
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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November 2017
Baker Valley Irrigation District/2601

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Baker Valley Irrigation District -- #2601

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Baker Valley Irrigation District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Baker Valley Irrigation District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Baker Valley Irrigation District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.48%	17.48%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(33.92%)	(33.92%)	(33.92%)	(33.92%)	(33.92%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Baker Valley Irrigation District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$149,756	$136,070
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(211,889)	(210,039)
Allocated pooled OPSRP UAL	11,959	10,100
Side account	0	0
Net unfunded pension actuarial accrued liability	(50,174)	(63,869)
Combined valuation payroll	69,464	71,048
Net pension UAL as a percentage of payroll	(72%)	(90%)
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(33.92%)	(31.11%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($9)	$345
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$69,464	$12,142	17.55%	$71,048	$12,469
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**69,464**	**12,142**		**71,048**	**12,469**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$69,464**	**$12,142**		**$71,048**	**$12,469**
Employer normal cost rate						
General Service			**17.48%**			**17.55%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**17.48%**			**17.55%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($210,039)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(19.29%)
B. Actual employer payroll	32,560
C. Payment to transition liability/(surplus)	(6,281)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(19.29%)
B. Actual employer payroll	34,483
C. Payment to transition liability/(surplus)	(6,652)
4. Supplemental payment to transition liability	0
5. Interest	(14,783)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($211,889)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(211,889)	(210,039)
2. Combined valuation payroll	69,464	71,048
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(33.92%)**	**(31.11%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	69,464	71,048
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Benton County/2040
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
Benton County/2040

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Benton County/2040

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Benton County -- #2040

November 2017

Secondary Employers

2639 North Albany Service District

CONTENTS

Executive Summary

Milliman has prepared this report for Benton County to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Benton County.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Benton County

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.73%	14.40%	20.44%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.79%)	(3.79%)	(3.79%)	(3.79%)	(3.79%)
Side account rate relief [2]	(2.37%)	(2.37%)	(2.37%)	(2.37%)	(2.37%)
Net pension contribution rate	**21.80%**	**20.47%**	**26.51%**	**14.56%**	**19.29%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**22.29%**	**20.96%**	**27.00%**	**14.98%**	**19.71%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Benton County

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$60,913,267	$49,302,793
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(9,643,091)	(10,182,211)
Allocated pooled OPSRP UAL	4,864,368	3,659,732
Side account	6,018,038	6,339,129
Net unfunded pension actuarial accrued liability	50,116,506	36,441,185
Combined valuation payroll	28,254,565	25,743,037
Net pension UAL as a percentage of payroll	177%	142%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.79%)	(4.16%)
Side account rate relief	(2.37%)	(2.59%)
Allocated pooled RHIA UAL	($3,847)	$124,999
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	**Actuarial Valuation as of** **December 31, 2016**	 **December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) **RHIPA**	**Actuarial Valuation as of** **December 31, 2016**	 **December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$3,169,754	$554,073	17.55%	$2,986,991	$524,217
Tier 2 General Service	12.54%	5,245,751	657,817	12.26%	5,407,080	662,908
Total General Service		**8,415,505**	**1,211,890**		**8,394,071**	**1,187,125**
Tier 1 Police & Fire	22.14%	694,501	153,763	21.37%	683,496	146,063
Tier 2 Police & Fire	19.73%	1,675,487	330,574	18.95%	1,572,631	298,014
Total Police & Fire		**2,369,988**	**484,337**		**2,256,127**	**444,077**
Total		**$10,785,493**	**$1,696,227**		**$10,650,198**	**$1,631,202**
Employer normal cost rate						
General Service			**14.40%**			**14.14%**
Police & Fire			**20.44%**			**19.68%**
Aggregate (Default)			**15.73%**			**15.32%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($10,182,211)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.51%)
B. Actual employer payroll	13,032,418
C. Payment to transition liability/(surplus)	(587,762)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.51%)
B. Actual employer payroll	13,838,846
C. Payment to transition liability/(surplus)	(624,132)
4. Supplemental payment to transition liability	0
5. Interest	(672,774)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($9,643,091)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(9,643,091)	(10,182,211)
2. Combined valuation payroll	28,254,565	25,743,037
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(3.79%)**	**(4.16%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$6,339,129**	**$6,339,129**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(748,562)	(748,562)
5. Side account earnings during 2016		428,472	428,472
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$6,018,038**	**$6,018,038**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$6,018,038	$6,339,129
Side Account 2	0	0
Side Account 3	0	0
Total	**$6,018,038**	**$6,339,129**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$6,018,038	$6,339,129
2. Combined valuation payroll	28,254,565	25,743,037
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(2.37%)	(2.59%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Black Butte Ranch Police/2749
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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November 2017
Black Butte Ranch Police/2749

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

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ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Black Butte Ranch Police -- #2749

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Black Butte Ranch Police to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Black Butte Ranch Police.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Black Butte Ranch Police

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	19.73%	14.84%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(7.61%)	(7.61%)	(7.61%)	(7.61%)	(7.61%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.67%**	**17.78%**	**22.67%**	**11.43%**	**16.16%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.16%**	**18.27%**	**23.16%**	**11.85%**	**16.58%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Black Butte Ranch Police

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$883,718	$772,616
Allocated pre-SLGRP pooled liability/(surplus)	(62,015)	(66,315)
Transition liability/(surplus)	(280,615)	(284,270)
Allocated pooled OPSRP UAL	70,571	57,351
Side account	0	0
Net unfunded pension actuarial accrued liability	611,659	479,382
Combined valuation payroll	409,912	403,415
Net pension UAL as a percentage of payroll	149%	119%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(7.61%)	(7.41%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($56)	$1,959
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	265,255	52,335	18.95%	262,065	49,661
Total Police & Fire		**265,255**	**52,335**		**262,065**	**49,661**
Total		**$265,255**	**$52,335**		**$262,065**	**$49,661**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**19.73%**			**18.95%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($284,270)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.93%)
B. Actual employer payroll	194,009
C. Payment to transition liability/(surplus)	(11,505)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.93%)
B. Actual employer payroll	197,787
C. Payment to transition liability/(surplus)	(11,728)
4. Supplemental payment to transition liability	0
5. Interest	(19,578)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($280,615)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(280,615)	(284,270)
2. Combined valuation payroll	409,912	403,415
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(7.61%)**	**(7.41%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	409,912	403,415
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Blue Mountain Community College/2901
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Blue Mountain Community College/2901

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Blue Mountain Community College -- #2901

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Blue Mountain Community College to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Blue Mountain Community College.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Blue Mountain Community College

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.59%	14.59%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	1.74%	1.74%	1.74%	1.74%	1.74%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(9.21%)	(9.21%)	(9.21%)	(9.21%)	(9.21%)
Net pension contribution rate	**19.35%**	**19.35%**	**25.42%**	**13.25%**	**17.98%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**19.84%**	**19.84%**	**25.91%**	**13.67%**	**18.40%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Blue Mountain Community College

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$22,540,476	$19,292,376
Allocated pre-SLGRP pooled liability/(surplus)	1,637,139	1,685,732
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	1,800,021	1,432,067
Side account	8,663,857	8,940,970
Net unfunded pension actuarial accrued liability	17,313,779	13,469,205
Combined valuation payroll	10,455,380	10,073,351
Net pension UAL as a percentage of payroll	166%	134%
Pre-SLGRP pooled rate	1.74%	1.76%
Transition rate	0.00%	0.00%
Side account rate relief	(9.21%)	(9.34%)
Allocated pooled RHIA UAL	($1,424)	$48,913
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$75,360,418	$13,173,001	17.55%	$82,957,159	$14,558,981
Tier 2 General Service	12.54%	105,835,897	13,271,821	12.26%	109,963,960	13,481,581
Total General Service		**181,196,315**	**26,444,822**		**192,921,119**	**28,040,562**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$181,196,315**	**$26,444,822**		**$192,921,119**	**$28,040,562**
Employer normal cost rate						
General Service			**14.59%**			**14.53%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.59%**			**14.53%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	10,455,380	10,073,351
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$8,940,970**	**$8,940,970**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(888,056)	(888,056)
5. Side account earnings during 2016		611,944	611,944
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$8,663,857**	**$8,663,857**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$8,663,857	$8,940,970
Side Account 2	0	0
Side Account 3	0	0
Total	**$8,663,857**	**$8,940,970**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$8,663,857	$8,940,970
2. Combined valuation payroll	10,455,380	10,073,351
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(9.21%)	(9.34%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Canby Fire District/2595
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
Canby Fire District/2595

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Canby Fire District/2595

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Canby Fire District -- #2595

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Canby Fire District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Canby Fire District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Canby Fire District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	19.72%	12.54%	20.39%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.93%)	(2.93%)	(2.93%)	(2.93%)	(2.93%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.02%**	**21.84%**	**29.69%**	**17.79%**	**22.52%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**29.51%**	**22.33%**	**30.18%**	**18.21%**	**22.94%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Canby Fire District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$3,832,466	$3,391,858
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(468,860)	(480,124)
Allocated pooled OPSRP UAL	306,050	251,777
Side account	0	0
Net unfunded pension actuarial accrued liability	3,669,656	3,163,511
Combined valuation payroll	1,777,686	1,771,030
Net pension UAL as a percentage of payroll	206%	179%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.93%)	(2.85%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($242)	$8,600
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	82,347	10,326	12.26%	74,385	9,120
Total General Service		**82,347**	**10,326**		**74,385**	**9,120**
Tier 1 Police & Fire	22.14%	242,152	53,612	21.37%	251,140	53,669
Tier 2 Police & Fire	19.73%	638,028	125,883	18.95%	740,497	140,324
Total Police & Fire		**880,180**	**179,495**		**991,637**	**193,993**
Total		**$962,527**	**$189,821**		**$1,066,022**	**$203,113**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.39%**			**19.56%**
Aggregate (Default)			**19.72%**			**19.05%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($480,124)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(2.48%)
B. Actual employer payroll	855,352
C. Payment to transition liability/(surplus)	(21,213)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(2.48%)
B. Actual employer payroll	917,821
C. Payment to transition liability/(surplus)	(22,762)
4. Supplemental payment to transition liability	0
5. Interest	(32,711)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($468,860)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(468,860)	(480,124)
2. Combined valuation payroll	1,777,686	1,771,030
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.93%)**	**(2.85%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,777,686	1,771,030
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Canby Utility Board/2731
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
Canby Utility Board/2731

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Canby Utility Board/2731

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Canby Utility Board -- #2731

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Canby Utility Board to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Canby Utility Board.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Canby Utility Board

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.71%	15.71%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.17%	0.17%	0.17%	0.17%	0.17%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.43%**	**26.43%**	**31.38%**	**19.21%**	**23.94%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.92%**	**26.92%**	**31.87%**	**19.63%**	**24.36%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Canby Utility Board

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$3,649,805	$3,292,896
Allocated pre-SLGRP pooled liability/(surplus)	(256,124)	(282,637)
Transition liability/(surplus)	25,438	26,318
Allocated pooled OPSRP UAL	291,464	244,431
Side account	0	0
Net unfunded pension actuarial accrued liability	3,710,583	3,281,008
Combined valuation payroll	1,692,959	1,719,358
Net pension UAL as a percentage of payroll	219%	191%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.17%	0.16%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($231)	$8,349
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$361,416	$63,176	17.55%	$350,625	$61,535
Tier 2 General Service	12.54%	202,612	25,408	12.26%	199,651	24,477
Total General Service		**564,028**	**88,584**		**550,276**	**86,012**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$564,028**	**$88,584**		**$550,276**	**$86,012**
Employer normal cost rate						
General Service			**15.71%**			**15.63%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.71%**			**15.63%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$26,318
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.15%
B. Actual employer payroll	896,149
C. Payment to transition liability/(surplus)	1,344
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.15%
B. Actual employer payroll	873,531
C. Payment to transition liability/(surplus)	1,311
4. Supplemental payment to transition liability	0
5. Interest	1,775
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$25,438**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	25,438	26,318
2. Combined valuation payroll	1,692,959	1,719,358
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**0.17%**	**0.16%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,692,959	1,719,358
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Cannon Beach Rural Fire Protection District/2840
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Cannon Beach Rural Fire Protection District/2840

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Cannon Beach Rural Fire Protection District -- #2840

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Cannon Beach Rural Fire Protection District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Cannon Beach Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Cannon Beach Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	22.14%	14.84%	22.14%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.06%)	(0.06%)	(0.06%)	(0.06%)	(0.06%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**32.63%**	**25.33%**	**32.63%**	**18.98%**	**23.71%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**33.12%**	**25.82%**	**33.12%**	**19.40%**	**24.13%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Cannon Beach Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$218,131	$248,157
Allocated pre-SLGRP pooled liability/(surplus)	(15,307)	(21,300)
Transition liability/(surplus)	(564)	(565)
Allocated pooled OPSRP UAL	17,419	18,421
Side account	0	0
Net unfunded pension actuarial accrued liability	219,679	244,713
Combined valuation payroll	101,180	129,573
Net pension UAL as a percentage of payroll	217%	189%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.06%)	(0.05%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($14)	$629
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	101,180	22,401	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	67,593	12,809
Total Police & Fire		**101,180**	**22,401**		**67,593**	**12,809**
Total		**$101,180**	**$22,401**		**$67,593**	**$12,809**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**22.14%**			**18.95%**
Aggregate (Default)			**22.14%**			**18.95%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($565)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.05%)
B. Actual employer payroll	35,378
C. Payment to transition liability/(surplus)	(18)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.05%)
B. Actual employer payroll	43,000
C. Payment to transition liability/(surplus)	(22)
4. Supplemental payment to transition liability	0
5. Interest	(39)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($564)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(564)	(565)
2. Combined valuation payroll	101,180	129,573
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.06%)**	**(0.05%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	101,180	129,573
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Central Oregon Coast Fire & Rescue District/2820
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Central Oregon Coast Fire & Rescue District/2820

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Central Oregon Coast Fire & Rescue District -- #2820

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Central Oregon Coast Fire & Rescue District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Central Oregon Coast Fire & Rescue District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Central Oregon Coast Fire & Rescue District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(34.96%)	(34.96%)	(34.96%)	(34.96%)	(34.96%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Central Oregon Coast Fire & Rescue District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$201,656	$791,871
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(294,143)	(281,276)
Allocated pooled OPSRP UAL	16,104	58,780
Side account	0	0
Net unfunded pension actuarial accrued liability	(76,383)	569,375
Combined valuation payroll	93,538	413,469
Net pension UAL as a percentage of payroll	(82%)	138%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(34.96%)	(7.16%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($13)	$2,008
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($281,276)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(8.25%)
B. Actual employer payroll	66,827
C. Payment to transition liability/(surplus)	(5,513)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(8.25%)
B. Actual employer payroll	25,956
C. Payment to transition liability/(surplus)	(2,142)
4. Supplemental payment to transition liability	0
5. Interest	(20,522)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($294,143)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(294,143)	(281,276)
2. Combined valuation payroll	93,538	413,469
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(34.96%)**	**(7.16%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	93,538	413,469
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Central Oregon Community College/2999
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Central Oregon Community College/2999

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Central Oregon Community College -- #2999

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Central Oregon Community College to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Central Oregon Community College.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Central Oregon Community College

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.59%	14.59%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	1.74%	1.74%	1.74%	1.74%	1.74%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(4.88%)	(4.88%)	(4.88%)	(4.88%)	(4.88%)
Net pension contribution rate	**23.68%**	**23.68%**	**29.75%**	**17.58%**	**22.31%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.17%**	**24.17%**	**30.24%**	**18.00%**	**22.73%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Central Oregon Community College

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$51,343,690	$43,977,766
Allocated pre-SLGRP pooled liability/(surplus)	3,729,148	3,842,696
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	4,100,167	3,264,456
Side account	10,446,286	10,918,433
Net unfunded pension actuarial accrued liability	48,726,719	40,166,485
Combined valuation payroll	23,815,725	22,962,619
Net pension UAL as a percentage of payroll	205%	175%
Pre-SLGRP pooled rate	1.74%	1.76%
Transition rate	0.00%	0.00%
Side account rate relief	(4.88%)	(5.00%)
Allocated pooled RHIA UAL	($3,243)	$111,499
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$75,360,418	$13,173,001	17.55%	$82,957,159	$14,558,981
Tier 2 General Service	12.54%	105,835,897	13,271,821	12.26%	109,963,960	13,481,581
Total General Service		**181,196,315**	**26,444,822**		**192,921,119**	**28,040,562**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$181,196,315**	**$26,444,822**		**$192,921,119**	**$28,040,562**
Employer normal cost rate						
General Service			**14.59%**			**14.53%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.59%**			**14.53%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	23,815,725	22,962,619
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$10,918,433**	**$10,918,433**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(1,213,456)	(1,213,456)
5. Side account earnings during 2016		742,310	742,310
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$10,446,286**	**$10,446,286**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$10,446,286	$10,918,433
Side Account 2	0	0
Side Account 3	0	0
Total	**$10,446,286**	**$10,918,433**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$10,446,286	$10,918,433
2. Combined valuation payroll	23,815,725	22,962,619
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(4.88%)	(5.00%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Central Oregon Intergovernmental Council/2569
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Central Oregon Intergovernmental Council/2569

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Central Oregon Intergovernmental Council -- #2569

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Central Oregon Intergovernmental Council to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Central Oregon Intergovernmental Council.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Central Oregon Intergovernmental Council

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.89%	13.89%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(12.97%)	(12.97%)	(12.97%)	(12.97%)	(12.97%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**13.15%**	**13.15%**	**19.92%**	**7.75%**	**12.48%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**13.64%**	**13.64%**	**20.41%**	**8.17%**	**12.90%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Central Oregon Intergovernmental Council

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$9,464,767	$9,946,746
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(7,183,364)	(7,203,707)
Allocated pooled OPSRP UAL	755,831	738,340
Side account	0	0
Net unfunded pension actuarial accrued liability	3,037,234	3,481,379
Combined valuation payroll	4,390,224	5,193,581
Net pension UAL as a percentage of payroll	69%	67%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(12.97%)	(10.78%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($598)	$25,218
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) **RHIPA**	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$452,475	$79,093	17.55%	$541,215	$94,983
Tier 2 General Service	12.54%	1,208,782	151,581	12.26%	1,373,789	168,427
Total General Service		**1,661,257**	**230,674**		**1,915,004**	**263,410**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,661,257**	**$230,674**		**$1,915,004**	**$263,410**
Employer normal cost rate						
General Service			**13.89%**			**13.76%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**13.89%**			**13.76%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($7,203,707)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(10.78%)
B. Actual employer payroll	2,486,531
C. Payment to transition liability/(surplus)	(268,048)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(10.78%)
B. Actual employer payroll	2,351,210
C. Payment to transition liability/(surplus)	(253,460)
4. Supplemental payment to transition liability	0
5. Interest	(501,165)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($7,183,364)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(7,183,364)	(7,203,707)
2. Combined valuation payroll	4,390,224	5,193,581
3. Regular amortization factor	12.618	12.861
4. **Total transition liability/(surplus) rate**	**(12.97%)**	**(10.78%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	4,390,224	5,193,581
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Central Oregon Irrigation District/2563
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Central Oregon Irrigation District/2563

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Central Oregon Irrigation District -- #2563

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Central Oregon Irrigation District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Central Oregon Irrigation District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Central Oregon Irrigation District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.93%	14.93%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	2.52%	2.52%	2.52%	2.52%	2.52%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.00%**	**28.00%**	**33.73%**	**21.56%**	**26.29%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**28.49%**	**28.49%**	**34.22%**	**21.98%**	**26.71%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Central Oregon Irrigation District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$3,970,226	$3,241,203
Allocated pre-SLGRP pooled liability/(surplus)	(278,610)	(278,200)
Transition liability/(surplus)	416,666	438,336
Allocated pooled OPSRP UAL	317,051	240,594
Side account	0	0
Net unfunded pension actuarial accrued liability	4,425,333	3,641,933
Combined valuation payroll	1,841,586	1,692,367
Net pension UAL as a percentage of payroll	240%	215%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	2.52%	2.73%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($251)	$8,218
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$347,036	$60,662	17.55%	$343,865	$60,348
Tier 2 General Service	12.54%	370,290	46,434	12.26%	370,281	45,396
Total General Service		**717,326**	**107,096**		**714,146**	**105,744**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$717,326**	**$107,096**		**$714,146**	**$105,744**
Employer normal cost rate						
General Service			**14.93%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.93%**			**14.81%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$438,336
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	2.95%
B. Actual employer payroll	829,156
C. Payment to transition liability/(surplus)	24,460
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	2.95%
B. Actual employer payroll	890,870
C. Payment to transition liability/(surplus)	26,280
4. Supplemental payment to transition liability	0
5. Interest	29,070
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$416,666**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	416,666	438,336
2. Combined valuation payroll	1,841,586	1,692,367
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**2.52%**	**2.73%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,841,586	1,692,367
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Charleston Rural Fire Protection District/2567
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Charleston Rural Fire Protection District/2567

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA	Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary	Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Charleston Rural Fire Protection District -- #2567

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Charleston Rural Fire Protection District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Charleston Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Charleston Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	21.16%	14.84%	21.16%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(8.62%)	(8.62%)	(8.62%)	(8.62%)	(8.62%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.77%**	**18.45%**	**24.77%**	**12.10%**	**16.83%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.26%**	**18.94%**	**25.26%**	**12.52%**	**17.25%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Charleston Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$276,359	$356,490
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(99,432)	(101,947)
Allocated pooled OPSRP UAL	22,069	26,462
Side account	0	0
Net unfunded pension actuarial accrued liability	198,996	281,005
Combined valuation payroll	128,189	186,138
Net pension UAL as a percentage of payroll	155%	151%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(8.62%)	(5.76%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($17)	$904
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	76,058	16,839	21.37%	130,397	27,866
Tier 2 Police & Fire	19.73%	52,131	10,285	18.95%	55,741	10,563
Total Police & Fire		**128,189**	**27,124**		**186,138**	**38,429**
Total		**$128,189**	**$27,124**		**$186,138**	**$38,429**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**21.16%**			**20.65%**
Aggregate (Default)			**21.16%**			**20.65%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($101,947)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.66%)
B. Actual employer payroll	85,241
C. Payment to transition liability/(surplus)	(4,825)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.66%)
B. Actual employer payroll	81,754
C. Payment to transition liability/(surplus)	(4,627)
4. Supplemental payment to transition liability	0
5. Interest	(6,937)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($99,432)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(99,432)	(101,947)
2. Combined valuation payroll	128,189	186,138
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(8.62%)**	**(5.76%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	128,189	186,138
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Chemeketa Community College/2919
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Chemeketa Community College/2919

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Chemeketa Community College -- #2919

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Chemeketa Community College to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Chemeketa Community College.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Chemeketa Community College

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.59%	14.59%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	1.74%	1.74%	1.74%	1.74%	1.74%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(11.05%)	(11.05%)	(11.05%)	(11.05%)	(11.05%)
Net pension contribution rate	**17.51%**	**17.51%**	**23.58%**	**11.41%**	**16.14%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**18.00%**	**18.00%**	**24.07%**	**11.83%**	**16.56%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Chemeketa Community College

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$102,475,888	$87,635,956
Allocated pre-SLGRP pooled liability/(surplus)	7,442,935	7,657,467
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	8,183,446	6,505,191
Side account	47,213,823	48,747,947
Net unfunded pension actuarial accrued liability	70,888,446	53,050,667
Combined valuation payroll	47,533,350	45,758,374
Net pension UAL as a percentage of payroll	149%	116%
Pre-SLGRP pooled rate	1.74%	1.76%
Transition rate	0.00%	0.00%
Side account rate relief	(11.05%)	(11.21%)
Allocated pooled RHIA UAL	($6,472)	$222,187
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$75,360,418	$13,173,001	17.55%	$82,957,159	$14,558,981
Tier 2 General Service	12.54%	105,835,897	13,271,821	12.26%	109,963,960	13,481,581
Total General Service		**181,196,315**	**26,444,822**		**192,921,119**	**28,040,562**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$181,196,315**	**$26,444,822**		**$192,921,119**	**$28,040,562**
Employer normal cost rate						
General Service			**14.59%**			**14.53%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.59%**			**14.53%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	47,533,350	45,758,374
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$48,747,947**	**$48,747,947**
2. Deposits during 2016		N/A	
3. Administrative expenses		(2,000)	(2,000)
4. Amount transferred to employer reserves during 2016		(4,887,632)	(4,887,632)
5. Side account earnings during 2016		3,355,508	3,355,508
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$47,213,823**	**$47,213,823**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$25,727,779	$26,559,117
Side Account 2	21,486,044	22,188,830
Side Account 3	0	0
Total	**$47,213,823**	**$48,747,947**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$47,213,823	$48,747,947
2. Combined valuation payroll	47,533,350	45,758,374
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(11.05%)	(11.21%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Chetco Library Board/2699
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Chetco Library Board/2699

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Chetco Library Board -- #2699

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Chetco Library Board to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Chetco Library Board.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Chetco Library Board

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.92%	16.92%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.46%)	(0.46%)	(0.46%)	(0.46%)	(0.46%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.01%**	**27.01%**	**30.75%**	**18.58%**	**23.31%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.50%**	**27.50%**	**31.24%**	**19.00%**	**23.73%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Chetco Library Board

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$491,675	$430,609
Allocated pre-SLGRP pooled liability/(surplus)	(34,503)	(36,960)
Transition liability/(surplus)	(9,342)	(9,637)
Allocated pooled OPSRP UAL	39,264	31,964
Side account	0	0
Net unfunded pension actuarial accrued liability	487,094	415,976
Combined valuation payroll	228,063	224,839
Net pension UAL as a percentage of payroll	214%	185%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.46%)	(0.45%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($31)	$1,092
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$131,465	$22,980	17.55%	$129,118	$22,660
Tier 2 General Service	12.54%	16,737	2,099	12.26%	16,593	2,034
Total General Service		**148,202**	**25,079**		**145,711**	**24,694**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$148,202**	**$25,079**		**$145,711**	**$24,694**
Employer normal cost rate						
General Service			**16.92%**			**16.95%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**16.92%**			**16.95%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($9,637)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.44%)
B. Actual employer payroll	106,342
C. Payment to transition liability/(surplus)	(468)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.44%)
B. Actual employer payroll	108,767
C. Payment to transition liability/(surplus)	(479)
4. Supplemental payment to transition liability	0
5. Interest	(652)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($9,342)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(9,342)	(9,637)
2. Combined valuation payroll	228,063	224,839
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.46%)**	**(0.45%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	**Continuing**	**Total**
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	228,063	224,839
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Adair Village/2258
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Adair Village/2258

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Adair Village -- #2258

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Adair Village to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Adair Village.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Adair Village

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.56%	0.56%	0.56%	0.56%	0.56%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.07%**	**25.95%**	**31.77%**	**19.60%**	**24.33%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.56%**	**26.44%**	**32.26%**	**20.02%**	**24.75%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Adair Village

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$444,651	$321,330
Allocated pre-SLGRP pooled liability/(surplus)	(31,203)	(27,581)
Transition liability/(surplus)	10,380	10,727
Allocated pooled OPSRP UAL	35,509	23,852
Side account	0	0
Net unfunded pension actuarial accrued liability	459,337	328,328
Combined valuation payroll	206,251	167,780
Net pension UAL as a percentage of payroll	223%	196%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.56%	0.67%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($28)	$815
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$10,727
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.56%
B. Actual employer payroll	92,764
C. Payment to transition liability/(surplus)	519
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.56%
B. Actual employer payroll	98,550
C. Payment to transition liability/(surplus)	552
4. Supplemental payment to transition liability	0
5. Interest	724
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$10,380**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	10,380	10,727
2. Combined valuation payroll	206,251	167,780
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**0.56%**	**0.67%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	206,251	167,780
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Albany/2103
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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November 2017
City of Albany/2103

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Albany/2103

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Albany -- #2103

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Albany to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Albany.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Albany

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.37%	14.17%	20.83%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.97%)	(2.97%)	(2.97%)	(2.97%)	(2.97%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.63%**	**23.43%**	**30.09%**	**17.75%**	**22.48%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.12%**	**23.92%**	**30.58%**	**18.17%**	**22.90%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Albany

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$60,942,315	$53,482,325
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(7,562,464)	(7,863,322)
Allocated pooled OPSRP UAL	4,866,687	3,969,977
Side account	0	0
Net unfunded pension actuarial accrued liability	58,246,538	49,588,980
Combined valuation payroll	28,268,039	27,925,344
Net pension UAL as a percentage of payroll	206%	178%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.97%)	(2.96%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,849)	$135,596
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$2,525,284	$441,420	17.55%	$2,976,138	$522,312
Tier 2 General Service	12.54%	5,129,893	643,289	12.26%	5,267,782	645,830
Total General Service		**7,655,177**	**1,084,709**		**8,243,920**	**1,168,142**
Tier 1 Police & Fire	22.14%	3,229,613	715,036	21.37%	3,710,979	793,036
Tier 2 Police & Fire	19.73%	3,840,881	757,806	18.95%	3,900,419	739,129
Total Police & Fire		**7,070,494**	**1,472,842**		**7,611,398**	**1,532,165**
Total		**$14,725,671**	**$2,557,551**		**$15,855,318**	**$2,700,307**
Employer normal cost rate						
General Service			**14.17%**			**14.17%**
Police & Fire			**20.83%**			**20.13%**
Aggregate (Default)			**17.37%**			**17.03%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($7,863,322)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(2.96%)
B. Actual employer payroll	13,976,313
C. Payment to transition liability/(surplus)	(413,699)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(2.96%)
B. Actual employer payroll	14,012,611
C. Payment to transition liability/(surplus)	(414,773)
4. Supplemental payment to transition liability	0
5. Interest	(527,614)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($7,562,464)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(7,562,464)	(7,863,322)
2. Combined valuation payroll	28,268,039	27,925,344
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.97%)**	**(2.96%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	28,268,039	27,925,344
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Amity/2235
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Amity/2235

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Amity -- #2235

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Amity to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Amity.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Amity

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(10.66%)	(10.66%)	(10.66%)	(10.66%)	(10.66%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**14.11%**	**14.11%**	**22.23%**	**10.06%**	**14.79%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**14.60%**	**14.60%**	**22.72%**	**10.48%**	**15.21%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Amity

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$623,580	$471,949
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(277,431)	(274,695)
Allocated pooled OPSRP UAL	49,797	35,033
Side account	0	0
Net unfunded pension actuarial accrued liability	395,946	232,287
Combined valuation payroll	289,247	246,424
Net pension UAL as a percentage of payroll	137%	94%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(10.66%)	(11.73%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($39)	$1,197
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	66,835	8,381	12.26%	122,231	14,986
Total General Service		**66,835**	**8,381**		**122,231**	**14,986**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$66,835**	**$8,381**		**$122,231**	**$14,986**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($274,695)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(6.22%)
B. Actual employer payroll	135,160
C. Payment to transition liability/(surplus)	(8,407)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(6.22%)
B. Actual employer payroll	132,039
C. Payment to transition liability/(surplus)	(8,213)
4. Supplemental payment to transition liability	0
5. Interest	(19,356)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($277,431)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(277,431)	(274,695)
2. Combined valuation payroll	289,247	246,424
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(10.66%)**	**(11.73%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	289,247	246,424
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Ashland/2104
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Ashland/2104

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Ashland/2104

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Ashland -- #2104

November 2017

Secondary Employers

2169	Ashland Community Hospital
2744	Ashland Parks Commission

CONTENTS

Executive Summary

Milliman has prepared this report for City of Ashland to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Ashland.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Ashland

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.03%	14.80%	20.56%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.47%	0.47%	0.47%	0.47%	0.47%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.05%**	**25.82%**	**31.58%**	**19.51%**	**24.24%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**28.54%**	**26.31%**	**32.07%**	**19.93%**	**24.66%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Ashland

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$38,094,237	$33,626,098
Allocated pre-SLGRP pooled liability/(surplus)	(2,673,253)	(2,886,205)
Transition liability/(surplus)	754,029	786,825
Allocated pooled OPSRP UAL	3,042,102	2,496,055
Side account	0	0
Net unfunded pension actuarial accrued liability	39,217,115	34,022,773
Combined valuation payroll	17,669,978	17,557,583
Net pension UAL as a percentage of payroll	222%	194%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.47%	0.47%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,406)	$85,254
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$2,229,335	$389,688	17.55%	$2,904,768	$509,787
Tier 2 General Service	12.54%	2,646,510	331,872	12.26%	2,932,030	359,467
Total General Service		**4,875,845**	**721,560**		**5,836,798**	**869,254**
Tier 1 Police & Fire	22.14%	1,064,272	235,630	21.37%	1,077,828	230,332
Tier 2 Police & Fire	19.73%	2,008,230	396,224	18.95%	1,822,478	345,360
Total Police & Fire		**3,072,502**	**631,854**		**2,900,306**	**575,692**
Total		**$7,948,347**	**$1,353,414**		**$8,737,104**	**$1,444,946**
Employer normal cost rate						
General Service			**14.80%**			**14.89%**
Police & Fire			**20.56%**			**19.85%**
Aggregate (Default)			**17.03%**			**16.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$786,825
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.47%
B. Actual employer payroll	8,773,929
C. Payment to transition liability/(surplus)	41,237
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.47%
B. Actual employer payroll	9,397,028
C. Payment to transition liability/(surplus)	44,166
4. Supplemental payment to transition liability	0
5. Interest	52,607
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$754,029**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	754,029	786,825
2. Combined valuation payroll	17,669,978	17,557,583
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**0.47%**	**0.47%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	17,669,978	17,557,583
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Astoria/2105
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Astoria/2105

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Astoria -- #2105

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Astoria to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Astoria.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Astoria

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.30%	14.19%	20.71%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	1.92%	1.92%	1.92%	1.92%	1.92%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.77%**	**26.66%**	**33.18%**	**20.96%**	**25.69%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**30.26%**	**27.15%**	**33.67%**	**21.38%**	**26.11%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Astoria

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$13,623,941	$12,932,823
Allocated pre-SLGRP pooled liability/(surplus)	(956,056)	(1,110,054)
Transition liability/(surplus)	1,090,327	1,138,371
Allocated pooled OPSRP UAL	1,087,971	960,000
Side account	0	0
Net unfunded pension actuarial accrued liability	14,846,183	13,921,140
Combined valuation payroll	6,319,453	6,752,764
Net pension UAL as a percentage of payroll	235%	206%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	1.92%	1.77%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($860)	$32,789
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$453,531	$79,277	17.55%	$565,067	$99,169
Tier 2 General Service	12.54%	902,488	113,172	12.26%	1,016,393	124,610
Total General Service		**1,356,019**	**192,449**		**1,581,460**	**223,779**
Tier 1 Police & Fire	22.14%	502,910	111,344	21.37%	588,814	125,830
Tier 2 Police & Fire	19.73%	731,108	144,248	18.95%	729,329	138,208
Total Police & Fire		**1,234,018**	**255,592**		**1,318,143**	**264,038**
Total		**$2,590,037**	**$448,041**		**$2,899,603**	**$487,817**
Employer normal cost rate						
General Service			**14.19%**			**14.15%**
Police & Fire			**20.71%**			**20.03%**
Aggregate (Default)			**17.30%**			**16.82%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$1,138,371
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	1.99%
B. Actual employer payroll	3,071,609
C. Payment to transition liability/(surplus)	61,125
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	1.99%
B. Actual employer payroll	3,165,217
C. Payment to transition liability/(surplus)	62,988
4. Supplemental payment to transition liability	0
5. Interest	76,069
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$1,090,327**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	1,090,327	1,138,371
2. Combined valuation payroll	6,319,453	6,752,764
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**1.92%**	**1.77%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	6,319,453	6,752,764
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Aumsville/2234
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Aumsville/2234

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Aumsville/2234

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Aumsville -- #2234

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Aumsville to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Aumsville.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Aumsville

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.32%	14.73%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(4.43%)	(4.43%)	(4.43%)	(4.43%)	(4.43%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.44%**	**20.85%**	**25.85%**	**14.61%**	**19.34%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**22.93%**	**21.34%**	**26.34%**	**15.03%**	**19.76%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Aumsville

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$2,043,044	$1,661,526
Allocated pre-SLGRP pooled liability/(surplus)	(143,370)	(142,613)
Transition liability/(surplus)	(377,802)	(417,890)
Allocated pooled OPSRP UAL	163,152	123,335
Side account	0	0
Net unfunded pension actuarial accrued liability	1,685,024	1,224,358
Combined valuation payroll	947,664	867,552
Net pension UAL as a percentage of payroll	178%	141%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(4.43%)	(5.07%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($129)	$4,213
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$133,120	$23,269	17.55%	$261,240	$45,848
Tier 2 General Service	12.54%	167,512	21,006	12.26%	162,339	19,903
Total General Service		**300,632**	**44,275**		**423,579**	**65,751**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	139,940	27,610	18.95%	71,761	13,599
Total Police & Fire		**139,940**	**27,610**		**71,761**	**13,599**
Total		**$440,572**	**$71,885**		**$495,340**	**$79,350**
Employer normal cost rate						
General Service			**14.73%**			**15.52%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**16.32%**			**16.02%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($417,890)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(7.78%)
B. Actual employer payroll	424,134
C. Payment to transition liability/(surplus)	(32,998)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(7.78%)
B. Actual employer payroll	429,922
C. Payment to transition liability/(surplus)	(33,448)
4. Supplemental payment to transition liability	0
5. Interest	(26,358)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($377,802)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(377,802)	(417,890)
2. Combined valuation payroll	947,664	867,552
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(4.43%)**	**(5.07%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	947,664	867,552
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Aurora/2272
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Aurora/2272

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Aurora/2272

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Aurora -- #2272

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Aurora to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Aurora.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Aurora

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.48%	17.48%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(12.69%)	(12.69%)	(12.69%)	(12.69%)	(12.69%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**17.02%**	**17.02%**	**20.20%**	**8.03%**	**12.76%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**17.51%**	**17.51%**	**20.69%**	**8.45%**	**13.18%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Aurora

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$489,827	$317,186
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(259,377)	(270,918)
Allocated pooled OPSRP UAL	39,116	23,545
Side account	0	0
Net unfunded pension actuarial accrued liability	269,566	69,813
Combined valuation payroll	227,206	165,616
Net pension UAL as a percentage of payroll	119%	42%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(12.69%)	(17.21%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($31)	$804
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$68,838	$12,033	17.55%	$66,182	$11,615
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**68,838**	**12,033**		**66,182**	**11,615**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$68,838**	**$12,033**		**$66,182**	**$11,615**
Employer normal cost rate						
General Service			**17.48%**			**17.55%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**17.48%**			**17.55%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($270,918)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(20.49%)
B. Actual employer payroll	84,606
C. Payment to transition liability/(surplus)	(13,162)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(20.49%)
B. Actual employer payroll	110,593
C. Payment to transition liability/(surplus)	(16,475)
4. Supplemental payment to transition liability	0
5. Interest	(18,096)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($259,377)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(259,377)	(270,918)
2. Combined valuation payroll	227,206	165,616
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(12.69%)**	**(17.21%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	227,206	165,616
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Baker City/2159
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Baker City/2159

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Baker City -- #2159

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Baker City to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Baker City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Baker City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.47%	14.13%	20.49%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.42%)	(0.42%)	(0.42%)	(0.42%)	(0.42%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.60%**	**24.26%**	**30.62%**	**18.62%**	**23.35%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**28.09%**	**24.75%**	**31.11%**	**19.04%**	**23.77%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Baker City

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$7,598,611	$7,104,595
Allocated pre-SLGRP pooled liability/(surplus)	(533,230)	(609,804)
Transition liability/(surplus)	(134,599)	(138,955)
Allocated pooled OPSRP UAL	606,804	527,372
Side account	0	0
Net unfunded pension actuarial accrued liability	7,537,586	6,883,208
Combined valuation payroll	3,524,609	3,709,604
Net pension UAL as a percentage of payroll	214%	186%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.42%)	(0.39%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($480)	$18,013
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$299,552	$52,362	17.55%	$348,401	$61,144
Tier 2 General Service	12.54%	630,390	79,051	12.26%	662,699	81,247
Total General Service		**929,942**	**131,413**		**1,011,100**	**142,391**
Tier 1 Police & Fire	22.14%	323,169	71,550	21.37%	377,261	80,621
Tier 2 Police & Fire	19.73%	708,253	139,738	18.95%	761,265	144,260
Total Police & Fire		**1,031,422**	**211,288**		**1,138,526**	**224,881**
Total		**$1,961,364**	**$342,701**		**$2,149,626**	**$367,272**
Employer normal cost rate						
General Service			**14.13%**			**14.08%**
Police & Fire			**20.49%**			**19.75%**
Aggregate (Default)			**17.47%**			**17.09%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($138,955)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.39%)
B. Actual employer payroll	1,761,111
C. Payment to transition liability/(surplus)	(6,868)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.39%)
B. Actual employer payroll	1,763,624
C. Payment to transition liability/(surplus)	(6,879)
4. Supplemental payment to transition liability	0
5. Interest	(9,391)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($134,599)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(134,599)	(138,955)
2. Combined valuation payroll	3,524,609	3,709,604
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.42%)**	**(0.39%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	3,524,609	3,709,604
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Bandon/2150
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Bandon/2150

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Bandon/2150

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Bandon -- #2150

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Bandon to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Bandon.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Bandon

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.17%	14.57%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.27%)	(0.27%)	(0.27%)	(0.27%)	(0.27%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.45%**	**24.85%**	**30.01%**	**18.77%**	**23.50%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.94%**	**25.34%**	**30.50%**	**19.19%**	**23.92%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Bandon

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$4,579,765	$3,854,725
Allocated pre-SLGRP pooled liability/(surplus)	(321,384)	(330,860)
Transition liability/(surplus)	(51,481)	(52,660)
Allocated pooled OPSRP UAL	365,728	286,135
Side account	0	0
Net unfunded pension actuarial accrued liability	4,572,628	3,757,340
Combined valuation payroll	2,124,320	2,012,712
Net pension UAL as a percentage of payroll	215%	187%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.27%)	(0.28%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($289)	$9,773
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$520,623	$91,005	17.55%	$532,914	$93,526
Tier 2 General Service	12.54%	748,668	93,883	12.26%	795,681	97,550
Total General Service		**1,269,291**	**184,888**		**1,328,595**	**191,076**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	167,253	32,999	18.95%	156,773	29,708
Total Police & Fire		**167,253**	**32,999**		**156,773**	**29,708**
Total		**$1,436,544**	**$217,887**		**$1,485,368**	**$220,784**
Employer normal cost rate						
General Service			**14.57%**			**14.38%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**15.17%**			**14.86%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($52,660)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.24%)
B. Actual employer payroll	985,996
C. Payment to transition liability/(surplus)	(2,366)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.24%)
B. Actual employer payroll	1,002,070
C. Payment to transition liability/(surplus)	(2,405)
4. Supplemental payment to transition liability	0
5. Interest	(3,592)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($51,481)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(51,481)	(52,660)
2. Combined valuation payroll	2,124,320	2,012,712
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.27%)**	**(0.28%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,124,320	2,012,712
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Banks/2231
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Banks/2231

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Banks -- #2231

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Banks to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Banks.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Banks

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(12.16%)	(12.16%)	(12.16%)	(12.16%)	(12.16%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**12.61%**	**12.61%**	**20.73%**	**8.56%**	**13.29%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**13.10%**	**13.10%**	**21.22%**	**8.98%**	**13.71%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Banks

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$583,578	$594,266
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(295,996)	(309,222)
Allocated pooled OPSRP UAL	46,603	44,112
Side account	0	0
Net unfunded pension actuarial accrued liability	334,185	329,156
Combined valuation payroll	270,692	310,291
Net pension UAL as a percentage of payroll	123%	106%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(12.16%)	(10.49%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($37)	$1,507
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	27,383	3,434	12.26%	27,644	3,389
Total General Service		**27,383**	**3,434**		**27,644**	**3,389**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$27,383**	**$3,434**		**$27,644**	**$3,389**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($309,222)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(9.26%)
B. Actual employer payroll	183,625
C. Payment to transition liability/(surplus)	(17,004)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(9.26%)
B. Actual employer payroll	182,218
C. Payment to transition liability/(surplus)	(16,873)
4. Supplemental payment to transition liability	0
5. Interest	(20,651)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($295,996)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(295,996)	(309,222)
2. Combined valuation payroll	270,692	310,291
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(12.16%)**	**(10.49%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	270,692	310,291
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Bay City/2241
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Bay City/2241

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Bay City/2241

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Bay City -- #2241

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Bay City to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Bay City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Bay City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(3.32%)	(3.32%)	(3.32%)	(3.32%)	(3.32%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**19.77%**	**19.77%**	**27.89%**	**15.72%**	**20.45%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**20.26%**	**20.26%**	**28.38%**	**16.14%**	**20.87%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Bay City

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$820,010	$634,975
Allocated pre-SLGRP pooled liability/(surplus)	(57,544)	(54,501)
Transition liability/(surplus)	(113,614)	(120,080)
Allocated pooled OPSRP UAL	65,484	47,134
Side account	0	0
Net unfunded pension actuarial accrued liability	714,336	507,528
Combined valuation payroll	380,361	331,547
Net pension UAL as a percentage of payroll	188%	153%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(3.32%)	(3.81%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($52)	$1,610
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	67,878	8,512	12.26%	64,586	7,918
Total General Service		**67,878**	**8,512**		**64,586**	**7,918**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$67,878**	**$8,512**		**$64,586**	**$7,918**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($120,080)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.11%)
B. Actual employer payroll	166,722
C. Payment to transition liability/(surplus)	(6,852)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.11%)
B. Actual employer payroll	183,472
C. Payment to transition liability/(surplus)	(7,541)
4. Supplemental payment to transition liability	0
5. Interest	(7,927)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($113,614)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(113,614)	(120,080)
2. Combined valuation payroll	380,361	331,547
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(3.32%)**	**(3.81%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	380,361	331,547
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

1 *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Boardman/2178
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Boardman/2178

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Boardman/2178

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Boardman -- #2178

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Boardman to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Boardman.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Boardman

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.41%	14.18%	20.89%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.60%)	(0.60%)	(0.60%)	(0.60%)	(0.60%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.36%**	**24.13%**	**30.84%**	**18.44%**	**23.17%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.85%**	**24.62%**	**31.33%**	**18.86%**	**23.59%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Boardman

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$2,264,547	$2,472,625
Allocated pre-SLGRP pooled liability/(surplus)	(158,914)	(212,231)
Transition liability/(surplus)	(56,376)	(59,188)
Allocated pooled OPSRP UAL	180,841	183,542
Side account	0	0
Net unfunded pension actuarial accrued liability	2,230,098	2,384,748
Combined valuation payroll	1,050,408	1,291,060
Net pension UAL as a percentage of payroll	212%	185%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.60%)	(0.48%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($143)	$6,269
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$81,078	$14,172	17.55%	$80,012	$14,042
Tier 2 General Service	12.54%	162,788	20,414	12.26%	325,748	39,937
Total General Service		**243,866**	**34,586**		**405,760**	**53,979**
Tier 1 Police & Fire	22.14%	58,370	12,923	21.37%	57,133	12,209
Tier 2 Police & Fire	19.73%	62,841	12,399	18.95%	61,201	11,598
Total Police & Fire		**121,211**	**25,322**		**118,334**	**23,807**
Total		**$365,077**	**$59,908**		**$524,094**	**$77,786**
Employer normal cost rate						
General Service			**14.18%**			**13.30%**
Police & Fire			**20.89%**			**20.12%**
Aggregate (Default)			**16.41%**			**14.84%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($59,188)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.51%)
B. Actual employer payroll	703,271
C. Payment to transition liability/(surplus)	(3,587)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.51%)
B. Actual employer payroll	619,254
C. Payment to transition liability/(surplus)	(3,158)
4. Supplemental payment to transition liability	0
5. Interest	(3,933)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($56,376)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(56,376)	(59,188)
2. Combined valuation payroll	1,050,408	1,291,060
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.60%)**	**(0.48%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,050,408	1,291,060
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Brookings/2216
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Brookings/2216

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Brookings/2216

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Brookings -- #2216

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Brookings to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Brookings.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Brookings

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.65%	13.29%	20.49%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.88%)	(0.88%)	(0.88%)	(0.88%)	(0.88%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.32%**	**22.96%**	**30.16%**	**18.16%**	**22.89%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.81%**	**23.45%**	**30.65%**	**18.58%**	**23.31%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Brookings

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$5,977,974	$5,741,619
Allocated pre-SLGRP pooled liability/(surplus)	(419,503)	(492,816)
Transition liability/(surplus)	(219,173)	(229,839)
Allocated pooled OPSRP UAL	477,385	426,199
Side account	0	0
Net unfunded pension actuarial accrued liability	5,816,683	5,445,163
Combined valuation payroll	2,772,878	2,997,938
Net pension UAL as a percentage of payroll	210%	182%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.88%)	(0.81%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($378)	$14,557
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$64,734	$11,316	17.55%	$152,833	$26,822
Tier 2 General Service	12.54%	362,545	45,463	12.26%	368,960	45,234
Total General Service		**427,279**	**56,779**		**521,793**	**72,056**
Tier 1 Police & Fire	22.14%	117,855	26,093	21.37%	120,830	25,821
Tier 2 Police & Fire	19.73%	256,534	50,614	18.95%	339,015	64,243
Total Police & Fire		**374,389**	**76,707**		**459,845**	**90,064**
Total		**$801,668**	**$133,486**		**$981,638**	**$162,120**
Employer normal cost rate						
General Service			**13.29%**			**13.81%**
Police & Fire			**20.49%**			**19.59%**
Aggregate (Default)			**16.65%**			**16.52%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($229,839)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.89%)
B. Actual employer payroll	1,447,204
C. Payment to transition liability/(surplus)	(12,880)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.89%)
B. Actual employer payroll	1,469,359
C. Payment to transition liability/(surplus)	(13,077)
4. Supplemental payment to transition liability	0
5. Interest	(15,291)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($219,173)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(219,173)	(229,839)
2. Combined valuation payroll	2,772,878	2,997,938
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.88%)**	**(0.81%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,772,878	2,997,938
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Burns/2204
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Burns/2204

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Burns/2204

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Burns -- #2204

November 2017

Secondary Employers

2108 City of Burns

CONTENTS

Executive Summary

Milliman has prepared this report for City of Burns to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Burns.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Burns

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.24%	16.24%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.79%)	(5.79%)	(5.79%)	(5.79%)	(5.79%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.68%**	**22.68%**	**27.10%**	**14.93%**	**19.66%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.17%**	**23.17%**	**27.59%**	**15.35%**	**20.08%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Burns

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,652,072	$1,210,748
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(398,892)	(417,491)
Allocated pooled OPSRP UAL	131,930	89,873
Side account	0	0
Net unfunded pension actuarial accrued liability	1,385,110	883,130
Combined valuation payroll	766,312	632,182
Net pension UAL as a percentage of payroll	181%	140%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.79%)	(6.95%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($104)	$3,070
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$180,664	$31,580	17.55%	$170,855	$29,985
Tier 2 General Service	12.54%	60,546	7,592	12.26%	51,239	6,282
Total General Service		**241,210**	**39,172**		**222,094**	**36,267**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$241,210**	**$39,172**		**$222,094**	**$36,267**
Employer normal cost rate						
General Service			**16.24%**			**16.33%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**16.24%**			**16.33%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($417,491)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(6.79%)
B. Actual employer payroll	329,264
C. Payment to transition liability/(surplus)	(22,357)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(6.79%)
B. Actual employer payroll	354,517
C. Payment to transition liability/(surplus)	(24,072)
4. Supplemental payment to transition liability	0
5. Interest	(27,830)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($398,892)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(398,892)	(417,491)
2. Combined valuation payroll	766,312	632,182
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.79%)**	**(6.95%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	766,312	632,182
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Canby/2109
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Canby/2109

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Canby/2109

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Canby -- #2109

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Canby to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Canby.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Canby

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.24%	14.85%	20.81%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.99%)	(5.99%)	(5.99%)	(5.99%)	(5.99%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.48%**	**21.09%**	**27.05%**	**14.73%**	**19.46%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.97%**	**21.58%**	**27.54%**	**15.15%**	**19.88%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Canby

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$13,749,385	$11,960,038
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(3,436,689)	(3,549,185)
Allocated pooled OPSRP UAL	1,097,988	887,790
Side account	0	0
Net unfunded pension actuarial accrued liability	11,410,684	9,298,643
Combined valuation payroll	6,377,640	6,244,833
Net pension UAL as a percentage of payroll	179%	149%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.99%)	(5.98%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($868)	$30,323
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$813,360	$142,175	17.55%	$863,490	$151,542
Tier 2 General Service	12.54%	923,413	115,796	12.26%	917,862	112,530
Total General Service		**1,736,773**	**257,971**		**1,781,352**	**264,072**
Tier 1 Police & Fire	22.14%	519,239	114,960	21.37%	652,153	139,365
Tier 2 Police & Fire	19.73%	637,295	125,738	18.95%	635,820	120,488
Total Police & Fire		**1,156,534**	**240,698**		**1,287,973**	**259,853**
Total		**$2,893,307**	**$498,669**		**$3,069,325**	**$523,925**
Employer normal cost rate						
General Service			**14.85%**			**14.82%**
Police & Fire			**20.81%**			**20.18%**
Aggregate (Default)			**17.24%**			**17.07%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($3,549,185)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.81%)
B. Actual employer payroll	2,986,975
C. Payment to transition liability/(surplus)	(173,543)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.81%)
B. Actual employer payroll	3,076,090
C. Payment to transition liability/(surplus)	(178,722)
4. Supplemental payment to transition liability	0
5. Interest	(239,769)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($3,436,689)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(3,436,689)	(3,549,185)
2. Combined valuation payroll	6,377,640	6,244,833
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.99%)**	**(5.98%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	6,377,640	6,244,833
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Cannon Beach/2223
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Cannon Beach/2223

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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November 2017
City of Cannon Beach/2223

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Cannon Beach -- #2223

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Cannon Beach to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Cannon Beach.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Cannon Beach

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.77%	14.90%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.94%)	(1.94%)	(1.94%)	(1.94%)	(1.94%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.38%**	**23.51%**	**28.34%**	**17.10%**	**21.83%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.87%**	**24.00%**	**28.83%**	**17.52%**	**22.25%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Cannon Beach

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$4,999,272	$3,787,322
Allocated pre-SLGRP pooled liability/(surplus)	(350,823)	(325,074)
Transition liability/(surplus)	(405,331)	(430,972)
Allocated pooled OPSRP UAL	399,228	281,132
Side account	0	0
Net unfunded pension actuarial accrued liability	4,642,346	3,312,408
Combined valuation payroll	2,318,908	1,977,518
Net pension UAL as a percentage of payroll	200%	168%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(1.94%)	(2.29%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($316)	$9,602
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$368,889	$64,482	17.55%	$339,875	$59,648
Tier 2 General Service	12.54%	404,071	50,671	12.26%	375,239	46,004
Total General Service		**772,960**	**115,153**		**715,114**	**105,652**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	169,409	33,424	18.95%	145,567	27,585
Total Police & Fire		**169,409**	**33,424**		**145,567**	**27,585**
Total		**$942,369**	**$148,577**		**$860,681**	**$133,237**
Employer normal cost rate						
General Service			**14.90%**			**14.77%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**15.77%**			**15.48%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($430,972)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(2.48%)
B. Actual employer payroll	1,035,079
C. Payment to transition liability/(surplus)	(25,670)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(2.48%)
B. Actual employer payroll	1,139,149
C. Payment to transition liability/(surplus)	(28,250)
4. Supplemental payment to transition liability	0
5. Interest	(28,279)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($405,331)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(405,331)	(430,972)
2. Combined valuation payroll	2,318,908	1,977,518
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.94%)**	**(2.29%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,318,908	1,977,518
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Carlton/2198
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Carlton/2198

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Carlton/2198

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Carlton -- #2198

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Carlton to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Carlton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Carlton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.50%	12.54%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(9.33%)	(9.33%)	(9.33%)	(9.33%)	(9.33%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**17.40%**	**15.44%**	**22.63%**	**11.39%**	**16.12%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**17.89%**	**15.93%**	**23.12%**	**11.81%**	**16.54%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Carlton

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,247,768	$910,224
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(485,638)	(519,162)
Allocated pooled OPSRP UAL	99,643	67,566
Side account	0	0
Net unfunded pension actuarial accrued liability	861,773	458,628
Combined valuation payroll	578,776	475,266
Net pension UAL as a percentage of payroll	149%	97%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(9.33%)	(11.49%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($79)	$2,308
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	166,142	20,834	12.26%	158,668	19,453
Total General Service		**166,142**	**20,834**		**158,668**	**19,453**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	62,326	12,297	18.95%	57,057	10,812
Total Police & Fire		**62,326**	**12,297**		**57,057**	**10,812**
Total		**$228,468**	**$33,131**		**$215,725**	**$30,265**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**14.50%**			**14.03%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($519,162)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(12.59%)
B. Actual employer payroll	254,944
C. Payment to transition liability/(surplus)	(31,918)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(12.59%)
B. Actual employer payroll	283,630
C. Payment to transition liability/(surplus)	(35,488)
4. Supplemental payment to transition liability	0
5. Interest	(33,882)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($485,638)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(485,638)	(519,162)
2. Combined valuation payroll	578,776	475,266
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(9.33%)**	**(11.49%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	578,776	475,266
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Cascade Locks/2182
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Cascade Locks/2182

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Cascade Locks -- #2182

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Cascade Locks to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Cascade Locks.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Cascade Locks

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.48%	17.48%	22.40%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	9.90%	9.90%	9.90%	9.90%	9.90%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**37.93%**	**37.93%**	**42.85%**	**28.94%**	**33.67%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**38.42%**	**38.42%**	**43.34%**	**29.36%**	**34.09%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Cascade Locks

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,227,820	$1,422,411
Allocated pre-SLGRP pooled liability/(surplus)	(86,162)	(122,089)
Transition liability/(surplus)	506,870	532,685
Allocated pooled OPSRP UAL	98,050	105,585
Side account	0	0
Net unfunded pension actuarial accrued liability	1,746,578	1,938,592
Combined valuation payroll	569,523	742,700
Net pension UAL as a percentage of payroll	307%	261%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	9.90%	7.55%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($78)	$3,606
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$230,498	$40,291	17.55%	$217,113	$38,103
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**230,498**	**40,291**		**217,113**	**38,103**
Tier 1 Police & Fire	22.14%	125	28	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**125**	**28**		**0**	**0**
Total		**$230,623**	**$40,319**		**$217,113**	**$38,103**
Employer normal cost rate						
General Service			**17.48%**			**17.55%**
Police & Fire			**22.40%**			**19.94%**
Aggregate (Default)			**17.48%**			**17.55%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$532,685
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	9.42%
B. Actual employer payroll	341,106
C. Payment to transition liability/(surplus)	32,132
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	9.42%
B. Actual employer payroll	308,345
C. Payment to transition liability/(surplus)	29,046
4. Supplemental payment to transition liability	0
5. Interest	35,363
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$506,870**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	506,870	532,685
2. Combined valuation payroll	569,523	742,700
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**9.90%**	**7.55%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	569,523	742,700
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Cave Junction/2194
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Cave Junction/2194

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Cave Junction/2194

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Cave Junction -- #2194

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Cave Junction to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Cave Junction.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Cave Junction

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	15.83%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.35%)	(1.35%)	(1.35%)	(1.35%)	(1.35%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.03%**	**25.03%**	**29.86%**	**17.69%**	**22.42%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.52%**	**25.52%**	**30.35%**	**18.11%**	**22.84%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Cave Junction

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$906,215	$895,133
Allocated pre-SLGRP pooled liability/(surplus)	(63,593)	(76,831)
Transition liability/(surplus)	(51,182)	(51,814)
Allocated pooled OPSRP UAL	72,368	66,445
Side account	0	0
Net unfunded pension actuarial accrued liability	863,808	832,933
Combined valuation payroll	420,347	467,386
Net pension UAL as a percentage of payroll	206%	178%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(1.35%)	(1.17%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($57)	$2,269
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	**Actuarial Valuation as of** **December 31, 2016**	 **December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) **RHIPA**	**Actuarial Valuation as of** **December 31, 2016**	 **December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$107,444	$18,781	17.55%	$181,187	$31,798
Tier 2 General Service	12.54%	53,948	6,765	12.26%	103,529	12,693
Total General Service		**161,392**	**25,546**		**284,716**	**44,491**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$161,392**	**$25,546**		**$284,716**	**$44,491**
Employer normal cost rate						
General Service			**15.83%**			**15.63%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.83%**			**15.63%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($51,814)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.08%)
B. Actual employer payroll	197,984
C. Payment to transition liability/(surplus)	(2,138)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.08%)
B. Actual employer payroll	191,141
C. Payment to transition liability/(surplus)	(2,065)
4. Supplemental payment to transition liability	0
5. Interest	(3,571)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($51,182)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(51,182)	(51,814)
2. Combined valuation payroll	420,347	467,386
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.35%)**	**(1.17%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	420,347	467,386
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Central Point/2181
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Central Point/2181

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Central Point/2181

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Central Point -- #2181

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Central Point to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Central Point.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Central Point

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.32%	13.59%	20.56%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.60%)	(2.60%)	(2.60%)	(2.60%)	(2.60%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.95%**	**23.22%**	**30.19%**	**18.12%**	**22.85%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.44%**	**23.71%**	**30.68%**	**18.54%**	**23.27%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Central Point

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$10,242,227	$8,485,191
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,111,168)	(1,153,891)
Allocated pooled OPSRP UAL	817,916	629,853
Side account	0	0
Net unfunded pension actuarial accrued liability	9,948,975	7,961,153
Combined valuation payroll	4,750,848	4,430,471
Net pension UAL as a percentage of payroll	209%	180%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.60%)	(2.74%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($647)	$21,513
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$362,158	$63,305	17.55%	$487,844	$85,617
Tier 2 General Service	12.54%	1,340,702	168,124	12.26%	1,303,842	159,851
Total General Service		**1,702,860**	**231,429**		**1,791,686**	**245,468**
Tier 1 Police & Fire	22.14%	192,566	42,634	21.37%	291,664	62,329
Tier 2 Police & Fire	19.73%	367,723	72,552	18.95%	465,057	88,128
Total Police & Fire		**560,289**	**115,186**		**756,721**	**150,457**
Total		**$2,263,149**	**$346,615**		**$2,548,407**	**$395,925**
Employer normal cost rate						
General Service			**13.59%**			**13.70%**
Police & Fire			**20.56%**			**19.88%**
Aggregate (Default)			**15.32%**			**15.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,153,891)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(2.65%)
B. Actual employer payroll	2,237,007
C. Payment to transition liability/(surplus)	(59,281)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(2.65%)
B. Actual employer payroll	2,300,570
C. Payment to transition liability/(surplus)	(60,965)
4. Supplemental payment to transition liability	0
5. Interest	(77,523)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,111,168)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,111,168)	(1,153,891)
2. Combined valuation payroll	4,750,848	4,430,471
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.60%)**	**(2.74%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	4,750,848	4,430,471
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Coburg/2201
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Coburg/2201

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Coburg/2201

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Coburg -- #2201

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Coburg to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Coburg.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Coburg

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.47%	12.54%	22.14%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(9.71%)	(9.71%)	(9.71%)	(9.71%)	(9.71%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**16.99%**	**15.06%**	**24.66%**	**11.01%**	**15.74%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**17.48%**	**15.55%**	**25.15%**	**11.43%**	**16.16%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Coburg

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,333,229	$1,235,224
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(540,128)	(572,378)
Allocated pooled OPSRP UAL	106,468	91,690
Side account	0	0
Net unfunded pension actuarial accrued liability	899,569	754,536
Combined valuation payroll	618,417	644,962
Net pension UAL as a percentage of payroll	145%	117%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(9.71%)	(9.34%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($84)	$3,132
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	321,768	40,350	12.26%	336,704	41,280
Total General Service		**321,768**	**40,350**		**336,704**	**41,280**
Tier 1 Police & Fire	22.14%	80,831	17,896	21.37%	81,691	17,457
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**80,831**	**17,896**		**81,691**	**17,457**
Total		**$402,599**	**$58,246**		**$418,395**	**$58,737**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**22.14%**			**21.37%**
Aggregate (Default)			**14.47%**			**14.04%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($572,378)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(10.19%)
B. Actual employer payroll	349,938
C. Payment to transition liability/(surplus)	(35,659)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(10.19%)
B. Actual employer payroll	336,356
C. Payment to transition liability/(surplus)	(34,274)
4. Supplemental payment to transition liability	0
5. Interest	(37,683)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($540,128)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(540,128)	(572,378)
2. Combined valuation payroll	618,417	644,962
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(9.71%)**	**(9.34%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	618,417	644,962
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Columbia City/2271
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Columbia City/2271

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Columbia City/2271

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Columbia City -- #2271

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Columbia City to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Columbia City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Columbia City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.48%	17.48%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.07%)	(0.07%)	(0.07%)	(0.07%)	(0.07%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.96%**	**27.96%**	**31.14%**	**18.97%**	**23.70%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**28.45%**	**28.45%**	**31.63%**	**19.39%**	**24.12%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Columbia City

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,027,095	$857,997
Allocated pre-SLGRP pooled liability/(surplus)	(72,076)	(73,644)
Transition liability/(surplus)	(2,871)	(2,957)
Allocated pooled OPSRP UAL	82,021	63,689
Side account	0	0
Net unfunded pension actuarial accrued liability	1,034,169	845,085
Combined valuation payroll	476,417	447,996
Net pension UAL as a percentage of payroll	217%	189%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.07%)	(0.07%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($65)	$2,175
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$149,462	$26,126	17.55%	$143,482	$25,181
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**149,462**	**26,126**		**143,482**	**25,181**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$149,462**	**$26,126**		**$143,482**	**$25,181**
Employer normal cost rate						
General Service			**17.48%**			**17.55%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**17.48%**			**17.55%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($2,957)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.06%)
B. Actual employer payroll	234,236
C. Payment to transition liability/(surplus)	(141)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.06%)
B. Actual employer payroll	243,014
C. Payment to transition liability/(surplus)	(145)
4. Supplemental payment to transition liability	0
5. Interest	(200)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,871)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(2,871)	(2,957)
2. Combined valuation payroll	476,417	447,996
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.07%)**	**(0.07%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	476,417	447,996
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Condon/2177
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Condon/2177

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Condon/2177

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Condon -- #2177

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Condon to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Condon.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Condon

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	9.94%	9.94%	9.94%	9.94%	9.94%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**34.71%**	**34.71%**	**42.83%**	**30.66%**	**35.39%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**35.20%**	**35.20%**	**43.32%**	**31.08%**	**35.81%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Condon

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$501,752	$396,925
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	207,992	215,287
Allocated pooled OPSRP UAL	40,069	29,464
Side account	0	0
Net unfunded pension actuarial accrued liability	749,813	641,676
Combined valuation payroll	232,737	207,251
Net pension UAL as a percentage of payroll	322%	310%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	9.94%	10.93%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($32)	$1,006
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer’s combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$7,631	$1,339
Tier 2 General Service	12.54%	106,523	13,358	12.26%	156,505	19,188
Total General Service		**106,523**	**13,358**		**164,136**	**20,527**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$106,523**	**$13,358**		**$164,136**	**$20,527**
Employer normal cost rate						
General Service			**12.54%**			**12.51%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.51%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$215,287
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	10.65%
B. Actual employer payroll	108,432
C. Payment to transition liability/(surplus)	11,548
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	10.65%
B. Actual employer payroll	96,314
C. Payment to transition liability/(surplus)	10,258
4. Supplemental payment to transition liability	0
5. Interest	14,511
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$207,992**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	207,992	215,287
2. Combined valuation payroll	232,737	207,251
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**9.94%**	**10.93%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	232,737	207,251
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Coquille/2110
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Coquille/2110

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Coquille -- #2110

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Coquille to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Coquille.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Coquille

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.29%	13.83%	20.45%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	1.32%	1.32%	1.32%	1.32%	1.32%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.16%**	**25.70%**	**32.32%**	**20.36%**	**25.09%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**29.65%**	**26.19%**	**32.81%**	**20.78%**	**25.51%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Coquille

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$3,083,138	$3,146,070
Allocated pre-SLGRP pooled liability/(surplus)	(216,358)	(270,034)
Transition liability/(surplus)	169,256	174,262
Allocated pooled OPSRP UAL	246,211	233,532
Side account	0	0
Net unfunded pension actuarial accrued liability	3,282,247	3,283,830
Combined valuation payroll	1,430,111	1,642,694
Net pension UAL as a percentage of payroll	230%	200%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	1.32%	1.12%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($195)	$7,976
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$64,833	$11,333	17.55%	$60,703	$10,653
Tier 2 General Service	12.54%	183,105	22,961	12.26%	248,101	30,417
Total General Service		**247,938**	**34,294**		**308,804**	**41,070**
Tier 1 Police & Fire	22.14%	80,932	17,918	21.37%	79,611	17,013
Tier 2 Police & Fire	19.73%	190,158	37,518	18.95%	168,727	31,974
Total Police & Fire		**271,090**	**55,436**		**248,338**	**48,987**
Total		**$519,028**	**$89,730**		**$557,142**	**$90,057**
Employer normal cost rate						
General Service			**13.83%**			**13.30%**
Police & Fire			**20.45%**			**19.73%**
Aggregate (Default)			**17.29%**			**16.16%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$174,262
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	1.15%
B. Actual employer payroll	756,656
C. Payment to transition liability/(surplus)	8,702
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	1.15%
B. Actual employer payroll	705,521
C. Payment to transition liability/(surplus)	8,113
4. Supplemental payment to transition liability	0
5. Interest	11,809
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$169,256**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	169,256	174,262
2. Combined valuation payroll	1,430,111	1,642,694
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**1.32%**	**1.12%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,430,111	1,642,694
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Corvallis/2155
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Corvallis/2155

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Corvallis/2155

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Corvallis -- #2155

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Corvallis to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Corvallis.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Corvallis

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.23%	15.03%	21.25%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.09%)	(5.09%)	(5.09%)	(5.09%)	(5.09%)
Side account rate relief [2]	(2.94%)	(2.94%)	(2.94%)	(2.94%)	(2.94%)
Net pension contribution rate	**21.43%**	**19.23%**	**25.45%**	**12.69%**	**17.42%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**21.92%**	**19.72%**	**25.94%**	**13.11%**	**17.84%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Corvallis

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$62,688,834	$55,656,580
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(13,323,171)	(13,732,665)
Allocated pooled OPSRP UAL	5,006,160	4,131,371
Side account	7,691,381	7,876,452
Net unfunded pension actuarial accrued liability	46,680,442	38,178,834
Combined valuation payroll	29,078,160	29,060,613
Net pension UAL as a percentage of payroll	161%	131%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.09%)	(4.97%)
Side account rate relief	(2.94%)	(2.85%)
Allocated pooled RHIA UAL	($3,959)	$141,108
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$4,697,119	$821,056	17.55%	$5,886,196	$1,033,027
Tier 2 General Service	12.54%	4,631,036	580,732	12.26%	4,953,287	607,273
Total General Service		**9,328,155**	**1,401,788**		**10,839,483**	**1,640,300**
Tier 1 Police & Fire	22.14%	3,212,894	711,335	21.37%	3,503,564	748,712
Tier 2 Police & Fire	19.73%	1,897,491	374,375	18.95%	1,973,791	374,033
Total Police & Fire		**5,110,385**	**1,085,710**		**5,477,355**	**1,122,745**
Total		**$14,438,540**	**$2,487,498**		**$16,316,838**	**$2,763,045**
Employer normal cost rate						
General Service			**15.03%**			**15.13%**
Police & Fire			**21.25%**			**20.50%**
Aggregate (Default)			**17.23%**			**16.93%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($13,732,665)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.61%)
B. Actual employer payroll	14,346,753
C. Payment to transition liability/(surplus)	(661,385)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.61%)
B. Actual employer payroll	14,699,203
C. Payment to transition liability/(surplus)	(677,633)
4. Supplemental payment to transition liability	0
5. Interest	(929,524)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($13,323,171)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(13,323,171)	(13,732,665)
2. Combined valuation payroll	29,078,160	29,060,613
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.09%)**	**(4.97%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$7,876,452**	**$7,876,452**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(731,018)	(731,018)
5. Side account earnings during 2016		546,946	546,946
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$7,691,381**	**$7,691,381**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$7,691,381	$7,876,452
Side Account 2	0	0
Side Account 3	0	0
Total	**$7,691,381**	**$7,876,452**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$7,691,381	$7,876,452
2. Combined valuation payroll	29,078,160	29,060,613
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(2.94%)	(2.85%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Creswell/2236
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Creswell/2236

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Creswell/2236

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Creswell -- #2236

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Creswell to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Creswell.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Creswell

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.33%	13.33%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.04%)	(2.04%)	(2.04%)	(2.04%)	(2.04%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.52%**	**23.52%**	**30.85%**	**18.68%**	**23.41%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.01%**	**24.01%**	**31.34%**	**19.10%**	**23.83%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Creswell

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,821,536	$1,383,284
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(154,703)	(171,596)
Allocated pooled OPSRP UAL	145,463	102,681
Side account	0	0
Net unfunded pension actuarial accrued liability	1,812,296	1,314,369
Combined valuation payroll	844,918	722,270
Net pension UAL as a percentage of payroll	214%	182%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.04%)	(2.50%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($115)	$3,507
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$58,070	$10,151	17.55%	$55,660	$9,768
Tier 2 General Service	12.54%	302,862	37,979	12.26%	299,502	36,719
Total General Service		**360,932**	**48,130**		**355,162**	**46,487**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$360,932**	**$48,130**		**$355,162**	**$46,487**
Employer normal cost rate						
General Service			**13.33%**			**13.09%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**13.33%**			**13.09%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($171,596)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(3.33%)
B. Actual employer payroll	411,055
C. Payment to transition liability/(surplus)	(13,688)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(3.33%)
B. Actual employer payroll	420,343
C. Payment to transition liability/(surplus)	(13,998)
4. Supplemental payment to transition liability	0
5. Interest	(10,793)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($154,703)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(154,703)	(171,596)
2. Combined valuation payroll	844,918	722,270
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.04%)**	**(2.50%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	844,918	722,270
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Dallas/2202
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Dallas/2202

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Dallas/2202

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Dallas -- #2202

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Dallas to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Dallas.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Dallas

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.51%	13.54%	20.88%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(0.27%)	(0.27%)	(0.27%)	(0.27%)	(0.27%)
Net pension contribution rate	**26.79%**	**23.82%**	**31.16%**	**18.77%**	**23.50%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.28%**	**24.31%**	**31.65%**	**19.19%**	**23.92%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Dallas

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$10,133,112	$8,601,101
Allocated pre-SLGRP pooled liability/(surplus)	(711,088)	(738,252)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	809,203	638,457
Side account	114,162	120,106
Net unfunded pension actuarial accrued liability	10,117,065	8,381,200
Combined valuation payroll	4,700,235	4,490,992
Net pension UAL as a percentage of payroll	215%	187%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.00%	0.00%
Side account rate relief	(0.27%)	(0.28%)
Allocated pooled RHIA UAL	($640)	$21,807
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$257,285	$44,973	17.55%	$311,833	$54,727
Tier 2 General Service	12.54%	1,015,535	127,348	12.26%	1,047,503	128,424
Total General Service		**1,272,820**	**172,321**		**1,359,336**	**183,151**
Tier 1 Police & Fire	22.14%	411,535	91,114	21.37%	498,352	106,498
Tier 2 Police & Fire	19.73%	452,381	89,255	18.95%	448,477	84,986
Total Police & Fire		**863,916**	**180,369**		**946,829**	**191,484**
Total		**$2,136,736**	**$352,690**		**$2,306,165**	**$374,635**
Employer normal cost rate						
General Service			**13.54%**			**13.47%**
Police & Fire			**20.88%**			**20.22%**
Aggregate (Default)			**16.51%**			**16.24%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate [1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate [1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	4,700,235	4,490,992
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$120,106**	**$120,106**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(13,083)	(13,083)
5. Side account earnings during 2016		8,139	8,139
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$114,162**	**$114,162**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$114,162	$120,106
Side Account 2	0	0
Side Account 3	0	0
Total	**$114,162**	**$120,106**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$114,162	$120,106
2. Combined valuation payroll	4,700,235	4,490,992
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(0.27%)	(0.28%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Dayton/2252
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Dayton/2252

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Dayton/2252

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Dayton -- #2252

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Dayton to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Dayton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Dayton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.34%	15.34%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(5.90%)	(5.90%)	(5.90%)	(5.90%)	(5.90%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**19.99%**	**19.99%**	**25.31%**	**13.14%**	**17.87%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**20.48%**	**20.48%**	**25.80%**	**13.56%**	**18.29%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Dayton

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$965,374	$719,736
Allocated pre-SLGRP pooled liability/(surplus)	(67,745)	(61,777)
Transition liability/(surplus)	(237,785)	(254,454)
Allocated pooled OPSRP UAL	77,092	53,426
Side account	0	0
Net unfunded pension actuarial accrued liability	736,936	456,931
Combined valuation payroll	447,788	375,804
Net pension UAL as a percentage of payroll	165%	122%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(5.90%)	(7.12%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($61)	$1,825
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$93,292	$16,307	17.55%	$89,986	$15,793
Tier 2 General Service	12.54%	71,560	8,974	12.26%	70,576	8,653
Total General Service		**164,852**	**25,281**		**160,562**	**24,446**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$164,852**	**$25,281**		**$160,562**	**$24,446**
Employer normal cost rate						
General Service			**15.34%**			**15.23%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.34%**			**15.23%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($254,454)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(7.88%)
B. Actual employer payroll	206,178
C. Payment to transition liability/(surplus)	(16,247)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(7.88%)
B. Actual employer payroll	215,891
C. Payment to transition liability/(surplus)	(17,012)
4. Supplemental payment to transition liability	0
5. Interest	(16,590)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($237,785)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(237,785)	(254,454)
2. Combined valuation payroll	447,788	375,804
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.90%)**	**(7.12%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	447,788	375,804
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Depoe Bay/2294
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Depoe Bay/2294

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Depoe Bay/2294

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Depoe Bay -- #2294

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Depoe Bay to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Depoe Bay.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Depoe Bay

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.69%	14.69%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.07%)	(0.07%)	(0.07%)	(0.07%)	(0.07%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.17%**	**25.17%**	**31.14%**	**18.97%**	**23.70%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.66%**	**25.66%**	**31.63%**	**19.39%**	**24.12%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Depoe Bay

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,468,885	$1,250,582
Allocated pre-SLGRP pooled liability/(surplus)	(103,079)	(107,340)
Transition liability/(surplus)	(4,238)	(4,392)
Allocated pooled OPSRP UAL	117,301	92,830
Side account	0	0
Net unfunded pension actuarial accrued liability	1,478,869	1,231,680
Combined valuation payroll	681,341	652,981
Net pension UAL as a percentage of payroll	217%	189%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.07%)	(0.07%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($93)	$3,171
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$164,618	$28,775	17.55%	$161,848	$28,404
Tier 2 General Service	12.54%	213,086	26,721	12.26%	195,660	23,988
Total General Service		**377,704**	**55,496**		**357,508**	**52,392**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$377,704**	**$55,496**		**$357,508**	**$52,392**
Employer normal cost rate						
General Service			**14.69%**			**14.65%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.69%**			**14.65%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($4,392)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.07%)
B. Actual employer payroll	318,558
C. Payment to transition liability/(surplus)	(223)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.07%)
B. Actual employer payroll	323,819
C. Payment to transition liability/(surplus)	(227)
4. Supplemental payment to transition liability	0
5. Interest	(296)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($4,238)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(4,238)	(4,392)
2. Combined valuation payroll	681,341	652,981
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.07%)**	**(0.07%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	**Continuing**	**Total**
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	681,341	652,981
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Drain/2131
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Drain/2131

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Drain -- #2131

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Drain to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Drain.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Drain

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.48%	17.48%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.03%**	**28.03%**	**31.21%**	**19.04%**	**23.77%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**28.52%**	**28.52%**	**31.70%**	**19.46%**	**24.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Drain

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$1,115,442	$1,152,544
Allocated pre-SLGRP pooled liability/(surplus)	(78,276)	(98,925)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	89,076	85,553
Side account	0	0
Net unfunded pension actuarial accrued liability	1,126,242	1,139,172
Combined valuation payroll	517,397	601,791
Net pension UAL as a percentage of payroll	218%	189%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.00%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($70)	$2,922
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$81,099	$14,176	17.55%	$123,141	$21,611
Tier 2 General Service	12.54%	0	0	12.26%	179,146	21,963
Total General Service		**81,099**	**14,176**		**302,287**	**43,574**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$81,099**	**$14,176**		**$302,287**	**$43,574**
Employer normal cost rate						
General Service			**17.48%**			**14.41%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**17.48%**			**14.41%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	517,397	601,791
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	517,397	601,791
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Dundee/2245
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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November 2017
City of Dundee/2245

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Dundee -- #2245

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Dundee to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Dundee.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Dundee

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.94%	14.50%	22.14%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.00%)	(3.00%)	(3.00%)	(3.00%)	(3.00%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.17%**	**23.73%**	**31.37%**	**17.72%**	**22.45%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.66%**	**24.22%**	**31.86%**	**18.14%**	**22.87%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Dundee

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,297,631	$1,120,725
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(162,250)	(170,749)
Allocated pooled OPSRP UAL	103,625	83,191
Side account	0	0
Net unfunded pension actuarial accrued liability	1,239,006	1,033,167
Combined valuation payroll	601,905	585,177
Net pension UAL as a percentage of payroll	206%	177%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.00%)	(3.07%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($82)	$2,841
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$116,816	$20,419	17.55%	$115,439	$20,260
Tier 2 General Service	12.54%	178,113	22,335	12.26%	175,526	21,519
Total General Service		**294,929**	**42,754**		**290,965**	**41,779**
Tier 1 Police & Fire	22.14%	68,415	15,147	21.37%	66,129	14,132
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**68,415**	**15,147**		**66,129**	**14,132**
Total		**$363,344**	**$57,901**		**$357,094**	**$55,911**
Employer normal cost rate						
General Service			**14.50%**			**14.36%**
Police & Fire			**22.14%**			**21.37%**
Aggregate (Default)			**15.94%**			**15.66%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($170,749)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(3.60%)
B. Actual employer payroll	272,850
C. Payment to transition liability/(surplus)	(9,823)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(3.60%)
B. Actual employer payroll	277,667
C. Payment to transition liability/(surplus)	(9,996)
4. Supplemental payment to transition liability	0
5. Interest	(11,320)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($162,250)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(162,250)	(170,749)
2. Combined valuation payroll	601,905	585,177
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(3.00%)**	**(3.07%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	601,905	585,177
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Dunes City/2299
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Dunes City/2299

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Dunes City -- #2299

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Dunes City to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Dunes City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Dunes City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	57.08%	57.08%	57.08%	57.08%	57.08%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**83.59%**	**82.47%**	**88.29%**	**76.12%**	**80.85%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**84.08%**	**82.96%**	**88.78%**	**76.54%**	**81.27%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Dunes City

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$12,543	$0
Allocated pre-SLGRP pooled liability/(surplus)	(880)	0
Transition liability/(surplus)	29,870	27,963
Allocated pooled OPSRP UAL	1,002	0
Side account	0	0
Net unfunded pension actuarial accrued liability	42,535	27,963
Combined valuation payroll	5,818	0
Net pension UAL as a percentage of payroll	731%	0%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	57.08%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1)	$0
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**16.05%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$27,963
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate [1]	6.06%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate [1]	6.06%
B. Actual employer payroll	2,927
C. Payment to transition liability/(surplus)	177
4. Supplemental payment to transition liability	0
5. Interest	2,084
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$29,870**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	29,870	27,963
2. Combined valuation payroll	5,818	0
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**57.08%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	5,818	0
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Durham/2269
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Durham/2269

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Durham/2269

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Durham -- #2269

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Durham to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Durham.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Durham

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.95%)	(3.95%)	(3.95%)	(3.95%)	(3.95%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.24%**	**23.12%**	**28.94%**	**16.77%**	**21.50%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.73%**	**23.61%**	**29.43%**	**17.19%**	**21.92%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Durham

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$204,040	$167,922
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(33,644)	(38,004)
Allocated pooled OPSRP UAL	16,294	12,465
Side account	0	0
Net unfunded pension actuarial accrued liability	186,690	142,383
Combined valuation payroll	94,644	87,679
Net pension UAL as a percentage of payroll	197%	162%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.95%)	(4.56%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($13)	$426
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($38,004)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate [1]	(7.48%)
B. Actual employer payroll	43,199
C. Payment to transition liability/(surplus)	(3,231)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate [1]	(7.48%)
B. Actual employer payroll	46,472
C. Payment to transition liability/(surplus)	(3,476)
4. Supplemental payment to transition liability	0
5. Interest	(2,347)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($33,644)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(33,644)	(38,004)
2. Combined valuation payroll	94,644	87,679
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(3.95%)**	**(4.56%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	94,644	87,679
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Echo/2225
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Echo/2225

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Echo -- #2225

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Echo to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Echo.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Echo

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.95%	16.95%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	6.06%	6.06%	6.06%	6.06%	6.06%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**33.56%**	**33.56%**	**37.27%**	**25.10%**	**29.83%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**34.05%**	**34.05%**	**37.76%**	**25.52%**	**30.25%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Echo

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$462,909	$399,032
Allocated pre-SLGRP pooled liability/(surplus)	(32,485)	(34,250)
Transition liability/(surplus)	117,081	121,832
Allocated pooled OPSRP UAL	36,967	29,620
Side account	0	0
Net unfunded pension actuarial accrued liability	584,472	516,234
Combined valuation payroll	214,720	208,351
Net pension UAL as a percentage of payroll	272%	248%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	6.06%	6.15%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($29)	$1,012
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$129,401	$22,619	17.55%	$127,639	$22,401
Tier 2 General Service	12.54%	15,573	1,953	12.26%	14,816	1,816
Total General Service		**144,974**	**24,572**		**142,455**	**24,217**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$144,974**	**$24,572**		**$142,455**	**$24,217**
Employer normal cost rate						
General Service			**16.95%**			**17.00%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**16.95%**			**17.00%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$121,832
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	6.26%
B. Actual employer payroll	99,178
C. Payment to transition liability/(surplus)	6,209
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	6.26%
B. Actual employer payroll	107,188
C. Payment to transition liability/(surplus)	6,710
4. Supplemental payment to transition liability	0
5. Interest	8,168
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$117,081**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	117,081	121,832
2. Combined valuation payroll	214,720	208,351
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**6.06%**	**6.15%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015		**N/A**	
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	214,720	208,351
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Elgin/2205
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Elgin/2205

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Elgin/2205

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Elgin -- #2205

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Elgin to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Elgin.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Elgin

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(26.55%)	(26.55%)	(26.55%)	(26.55%)	(26.55%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**4.66%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**0.49%**	**0.49%**	**5.15%**	**0.42%**	**0.42%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Elgin

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$973,069	$666,122
Allocated pre-SLGRP pooled liability/(surplus)	(68,285)	(57,175)
Transition liability/(surplus)	(1,077,986)	(1,058,713)
Allocated pooled OPSRP UAL	77,707	49,446
Side account	0	0
Net unfunded pension actuarial accrued liability	(95,495)	(400,320)
Combined valuation payroll	451,357	347,810
Net pension UAL as a percentage of payroll	(21%)	(115%)
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(26.55%)	(32.03%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($61)	$1,689
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$34,999	$6,142
Tier 2 General Service	12.54%	40,454	5,073	12.26%	36,512	4,476
Total General Service		**40,454**	**5,073**		**71,511**	**10,618**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$40,454**	**$5,073**		**$71,511**	**$10,618**
Employer normal cost rate						
General Service			**12.54%**			**14.85%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**14.85%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,058,713)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(17.13%)
B. Actual employer payroll	248,423
C. Payment to transition liability/(surplus)	(33,313)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(17.13%)
B. Actual employer payroll	200,252
C. Payment to transition liability/(surplus)	(22,622)
4. Supplemental payment to transition liability	0
5. Interest	(75,208)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,077,986)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,077,986)	(1,058,713)
2. Combined valuation payroll	451,357	347,810
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(26.55%)**	**(32.03%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	451,357	347,810
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Elkton/2305
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Elkton/2305

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Elkton -- #2305

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Elkton to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Elkton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Elkton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.08%	0.08%	0.08%	0.08%	0.08%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.17%**	**23.17%**	**31.29%**	**19.12%**	**23.85%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.66%**	**23.66%**	**31.78%**	**19.54%**	**24.27%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Elkton

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$79,509	$70,075
Allocated pre-SLGRP pooled liability/(surplus)	(5,579)	(6,015)
Transition liability/(surplus)	259	255
Allocated pooled OPSRP UAL	6,349	5,202
Side account	0	0
Net unfunded pension actuarial accrued liability	80,538	69,517
Combined valuation payroll	36,880	36,589
Net pension UAL as a percentage of payroll	218%	190%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.08%	0.07%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5)	$178
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	36,880	4,625	12.26%	36,589	4,486
Total General Service		**36,880**	**4,625**		**36,589**	**4,486**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$36,880**	**$4,625**		**$36,589**	**$4,486**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$255
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.04%
B. Actual employer payroll	18,125
C. Payment to transition liability/(surplus)	7
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.04%
B. Actual employer payroll	17,470
C. Payment to transition liability/(surplus)	7
4. Supplemental payment to transition liability	0
5. Interest	18
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$259**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	259	255
2. Combined valuation payroll	36,880	36,589
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**0.08%**	**0.07%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	36,880	36,589
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Enterprise/2180
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Enterprise/2180

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Enterprise -- #2180

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Enterprise to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Enterprise.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Enterprise

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.67%	14.67%	19.71%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(0.07%)	(0.07%)	(0.07%)	(0.07%)	(0.07%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.83%**	**26.83%**	**31.87%**	**20.65%**	**25.38%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.32%**	**27.32%**	**32.36%**	**21.07%**	**25.80%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Enterprise

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$1,490,347	$1,254,926
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(4,286)	(4,352)
Allocated pooled OPSRP UAL	119,015	93,153
Side account	0	0
Net unfunded pension actuarial accrued liability	1,605,076	1,343,727
Combined valuation payroll	691,296	655,249
Net pension UAL as a percentage of payroll	232%	205%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(0.07%)	(0.07%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($94)	$3,182
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$144,611	$25,278	17.55%	$147,313	$25,853
Tier 2 General Service	12.54%	191,197	23,976	12.26%	185,324	22,721
Total General Service		**335,808**	**49,254**		**332,637**	**48,574**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	416	82	18.95%	786	149
Total Police & Fire		**416**	**82**		**786**	**149**
Total		**$336,224**	**$49,336**		**$333,423**	**$48,723**
Employer normal cost rate						
General Service			**14.67%**			**14.60%**
Police & Fire			**19.71%**			**18.96%**
Aggregate (Default)			**14.67%**			**14.61%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($4,352)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.06%)
B. Actual employer payroll	305,153
C. Payment to transition liability/(surplus)	(183)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.06%)
B. Actual employer payroll	301,988
C. Payment to transition liability/(surplus)	(182)
4. Supplemental payment to transition liability	0
5. Interest	(299)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($4,286)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(4,286)	(4,352)
2. Combined valuation payroll	691,296	655,249
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.07%)**	**(0.07%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	691,296	655,249
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Estacada/2179
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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November 2017
City of Estacada/2179

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Estacada -- #2179

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Estacada to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Estacada.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Estacada

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.24%	15.24%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.72%	0.72%	0.72%	0.72%	0.72%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.51%**	**26.51%**	**31.93%**	**19.76%**	**24.49%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.00%**	**27.00%**	**32.42%**	**20.18%**	**24.91%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Estacada

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$2,305,284	$1,771,068
Allocated pre-SLGRP pooled liability/(surplus)	(161,773)	(152,015)
Transition liability/(surplus)	69,559	74,818
Allocated pooled OPSRP UAL	184,094	131,466
Side account	0	0
Net unfunded pension actuarial accrued liability	2,397,164	1,825,337
Combined valuation payroll	1,069,304	924,748
Net pension UAL as a percentage of payroll	224%	197%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.72%	0.85%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($146)	$4,490
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$226,063	$39,516	17.55%	$241,737	$42,425
Tier 2 General Service	12.54%	187,471	23,509	12.26%	174,044	21,338
Total General Service		**413,534**	**63,025**		**415,781**	**63,763**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$413,534**	**$63,025**		**$415,781**	**$63,763**
Employer normal cost rate						
General Service			**15.24%**			**15.34%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.24%**			**15.34%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$74,818
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.97%
B. Actual employer payroll	507,512
C. Payment to transition liability/(surplus)	4,923
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.97%
B. Actual employer payroll	535,006
C. Payment to transition liability/(surplus)	5,189
4. Supplemental payment to transition liability	0
5. Interest	4,853
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$69,559**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	69,559	74,818
2. Combined valuation payroll	1,069,304	924,748
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**0.72%**	**0.85%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,069,304	924,748
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Fairview/2208
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Fairview/2208

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Fairview -- #2208

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Fairview to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Fairview.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Fairview

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.14%	14.43%	20.63%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.81%	10.81%	10.81%	10.81%	10.81%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.60%)	(3.60%)	(3.60%)	(3.60%)	(3.60%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.91%**	**23.20%**	**29.40%**	**17.26%**	**21.99%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.40%**	**23.69%**	**29.89%**	**17.68%**	**22.41%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Fairview

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$5,829,033	$5,039,162
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(875,073)	(918,560)
Allocated pooled OPSRP UAL	465,491	374,056
Side account	0	0
Net unfunded pension actuarial accrued liability	5,419,451	4,494,658
Combined valuation payroll	2,703,792	2,631,156
Net pension UAL as a percentage of payroll	200%	171%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.60%)	(3.67%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($368)	$12,776
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$271,100	$47,388	17.55%	$309,583	$54,332
Tier 2 General Service	12.54%	438,384	54,973	12.26%	433,225	53,113
Total General Service		**709,484**	**102,361**		**742,808**	**107,445**
Tier 1 Police & Fire	22.14%	100,611	22,275	21.37%	174,293	37,246
Tier 2 Police & Fire	19.73%	169,163	33,376	18.95%	169,145	32,053
Total Police & Fire		**269,774**	**55,651**		**343,438**	**69,299**
Total		**$979,258**	**$158,012**		**$1,086,246**	**$176,744**
Employer normal cost rate						
General Service			**14.43%**			**14.46%**
Police & Fire			**20.63%**			**20.18%**
Aggregate (Default)			**16.14%**			**16.27%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($918,560)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.03%)
B. Actual employer payroll	1,262,566
C. Payment to transition liability/(surplus)	(50,881)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.03%)
B. Actual employer payroll	1,331,473
C. Payment to transition liability/(surplus)	(53,658)
4. Supplemental payment to transition liability	0
5. Interest	(61,052)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($875,073)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(875,073)	(918,560)
2. Combined valuation payroll	2,703,792	2,631,156
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(3.60%)**	**(3.67%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,703,792	2,631,156
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Falls City/2224
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Falls City/2224

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Falls City -- #2224

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Falls City to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Falls City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Falls City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.39%	15.39%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.27%)	(5.27%)	(5.27%)	(5.27%)	(5.27%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.35%**	**22.35%**	**27.62%**	**15.45%**	**20.18%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**22.84%**	**22.84%**	**28.11%**	**15.87%**	**20.60%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Falls City

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$337,927	$274,472
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(74,312)	(75,698)
Allocated pooled OPSRP UAL	26,986	20,374
Side account	0	0
Net unfunded pension actuarial accrued liability	290,601	219,148
Combined valuation payroll	156,747	143,313
Net pension UAL as a percentage of payroll	185%	153%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.27%)	(5.56%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($21)	$696
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$51,933	$9,078	17.55%	$51,202	$8,986
Tier 2 General Service	12.54%	38,125	4,781	12.26%	55,149	6,761
Total General Service		**90,058**	**13,859**		**106,351**	**15,747**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$90,058**	**$13,859**		**$106,351**	**$15,747**
Employer normal cost rate						
General Service			**15.39%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.39%**			**14.81%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($75,698)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.45%)
B. Actual employer payroll	69,242
C. Payment to transition liability/(surplus)	(3,081)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.45%)
B. Actual employer payroll	78,417
C. Payment to transition liability/(surplus)	(3,490)
4. Supplemental payment to transition liability	0
5. Interest	(5,185)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($74,312)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(74,312)	(75,698)
2. Combined valuation payroll	156,747	143,313
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.27%)**	**(5.56%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	156,747	143,313
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Florence/2291
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Florence/2291

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Florence/2291

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Florence -- #2291

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Florence to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Florence.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Florence

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.35%	14.26%	21.19%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(9.83%)	(9.83%)	(9.83%)	(9.83%)	(9.83%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**19.75%**	**16.66%**	**23.59%**	**10.89%**	**15.62%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**20.24%**	**17.15%**	**24.08%**	**11.31%**	**16.04%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Florence

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$6,635,472	$5,771,021
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,721,015)	(2,810,952)
Allocated pooled OPSRP UAL	529,891	428,381
Side account	0	0
Net unfunded pension actuarial accrued liability	4,444,348	3,388,450
Combined valuation payroll	3,077,858	3,013,290
Net pension UAL as a percentage of payroll	144%	112%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(9.83%)	(9.82%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($419)	$14,632
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$252,119	$44,070	17.55%	$440,352	$77,282
Tier 2 General Service	12.54%	471,575	59,136	12.26%	460,302	56,433
Total General Service		**723,694**	**103,206**		**900,654**	**133,715**
Tier 1 Police & Fire	22.14%	352,427	78,027	21.37%	343,545	73,416
Tier 2 Police & Fire	19.73%	230,505	45,479	18.95%	224,822	42,604
Total Police & Fire		**582,932**	**123,506**		**568,367**	**116,020**
Total		**$1,306,626**	**$226,712**		**$1,469,021**	**$249,735**
Employer normal cost rate						
General Service			**14.26%**			**14.85%**
Police & Fire			**21.19%**			**20.41%**
Aggregate (Default)			**17.35%**			**17.00%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($2,810,952)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(9.22%)
B. Actual employer payroll	1,541,365
C. Payment to transition liability/(surplus)	(142,114)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(9.22%)
B. Actual employer payroll	1,493,081
C. Payment to transition liability/(surplus)	(137,661)
4. Supplemental payment to transition liability	0
5. Interest	(189,838)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,721,015)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(2,721,015)	(2,810,952)
2. Combined valuation payroll	3,077,858	3,013,290
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(9.83%)**	**(9.82%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	3,077,858	3,013,290
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Garibaldi/2220
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Garibaldi/2220

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Garibaldi/2220

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Garibaldi -- #2220

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Garibaldi to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Garibaldi.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Garibaldi

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.73%	14.73%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	1.28%	1.28%	1.28%	1.28%	1.28%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.24%**	**28.24%**	**34.17%**	**22.00%**	**26.73%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**28.73%**	**28.73%**	**34.66%**	**22.42%**	**27.15%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Garibaldi

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$893,620	$836,949
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	47,615	52,010
Allocated pooled OPSRP UAL	71,362	62,126
Side account	0	0
Net unfunded pension actuarial accrued liability	1,012,597	951,085
Combined valuation payroll	414,505	437,006
Net pension UAL as a percentage of payroll	244%	218%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	1.28%	1.25%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($56)	$2,122
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$68,928	$12,049	17.55%	$64,412	$11,304
Tier 2 General Service	12.54%	86,726	10,875	12.26%	127,764	15,664
Total General Service		**155,654**	**22,924**		**192,176**	**26,968**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$155,654**	**$22,924**		**$192,176**	**$26,968**
Employer normal cost rate						
General Service			**14.73%**			**14.03%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.73%**			**14.03%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$52,010
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	1.92%
B. Actual employer payroll	201,404
C. Payment to transition liability/(surplus)	3,867
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	1.92%
B. Actual employer payroll	200,546
C. Payment to transition liability/(surplus)	3,850
4. Supplemental payment to transition liability	0
5. Interest	3,322
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$47,615**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	47,615	52,010
2. Combined valuation payroll	414,505	437,006
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**1.28%**	**1.25%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	414,505	437,006
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Gaston/2242
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Gaston/2242

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Gaston/2242

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Gaston -- #2242

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Gaston to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Gaston.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Gaston

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(232.46%)	(232.46%)	(232.46%)	(232.46%)	(232.46%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Gaston

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$42,477	$91,843
Allocated pre-SLGRP pooled liability/(surplus)	(2,981)	(7,883)
Transition liability/(surplus)	(411,934)	(389,504)
Allocated pooled OPSRP UAL	3,392	6,817
Side account	0	0
Net unfunded pension actuarial accrued liability	(369,046)	(298,727)
Combined valuation payroll	19,703	47,955
Net pension UAL as a percentage of payroll	(1,873%)	(623%)
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(232.46%)	(85.46%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3)	$233
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$47,955	$8,416
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**47,955**	**8,416**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$47,955**	**$8,416**
Employer normal cost rate						
General Service			**14.84%**			**17.55%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**17.55%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($389,504)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(18.69%)
B. Actual employer payroll	25,829
C. Payment to transition liability/(surplus)	(4,614)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(18.69%)
B. Actual employer payroll	15,949
C. Payment to transition liability/(surplus)	(1,696)
4. Supplemental payment to transition liability	0
5. Interest	(28,740)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($411,934)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(411,934)	(389,504)
2. Combined valuation payroll	19,703	47,955
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(232.46%)**	**(85.46%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	19,703	47,955
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Gladstone/2304
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Gladstone/2304

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Gladstone -- #2304

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Gladstone to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Gladstone.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Gladstone

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.58%	15.11%	20.89%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.06%)	(5.06%)	(5.06%)	(5.06%)	(5.06%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.75%**	**22.28%**	**28.06%**	**15.66%**	**20.39%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.24%**	**22.77%**	**28.55%**	**16.08%**	**20.81%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Gladstone

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$6,454,592	$5,031,819
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,363,657)	(1,435,610)
Allocated pooled OPSRP UAL	515,446	373,510
Side account	0	0
Net unfunded pension actuarial accrued liability	5,606,381	3,969,719
Combined valuation payroll	2,993,957	2,627,322
Net pension UAL as a percentage of payroll	187%	151%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.06%)	(5.75%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($408)	$12,757
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$430,046	$75,172	17.55%	$468,818	$82,278
Tier 2 General Service	12.54%	397,702	49,872	12.26%	368,166	45,137
Total General Service		**827,748**	**125,044**		**836,984**	**127,415**
Tier 1 Police & Fire	22.14%	297,439	65,853	21.37%	246,582	52,695
Tier 2 Police & Fire	19.73%	322,622	63,653	18.95%	307,343	58,241
Total Police & Fire		**620,061**	**129,506**		**553,925**	**110,936**
Total		**$1,447,809**	**$254,550**		**$1,390,909**	**$238,351**
Employer normal cost rate						
General Service			**15.11%**			**15.22%**
Police & Fire			**20.89%**			**20.03%**
Aggregate (Default)			**17.58%**			**17.14%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,435,610)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.75%)
B. Actual employer payroll	1,364,344
C. Payment to transition liability/(surplus)	(78,450)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.75%)
B. Actual employer payroll	1,541,597
C. Payment to transition liability/(surplus)	(88,642)
4. Supplemental payment to transition liability	0
5. Interest	(95,139)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,363,657)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,363,657)	(1,435,610)
2. Combined valuation payroll	2,993,957	2,627,322
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.06%)**	**(5.75%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,993,957	2,627,322
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Gold Hill/2274
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Gold Hill/2274

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Gold Hill -- #2274

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Gold Hill to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Gold Hill.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Gold Hill

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(20.14%)	(20.14%)	(20.14%)	(20.14%)	(20.14%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**2.95%**	**2.95%**	**11.07%**	**0.00%**	**3.63%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**3.44%**	**3.44%**	**11.56%**	**0.42%**	**4.05%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Gold Hill

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$282,167	$387,696
Allocated pre-SLGRP pooled liability/(surplus)	(19,801)	(33,277)
Transition liability/(surplus)	(237,042)	(238,021)
Allocated pooled OPSRP UAL	22,533	28,779
Side account	0	0
Net unfunded pension actuarial accrued liability	47,857	145,177
Combined valuation payroll	130,883	202,432
Net pension UAL as a percentage of payroll	37%	72%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(20.14%)	(12.37%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($18)	$983
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	105,758	13,262	12.26%	83,571	10,246
Total General Service		**105,758**	**13,262**		**83,571**	**10,246**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$105,758**	**$13,262**		**$83,571**	**$10,246**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($238,021)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(11.28%)
B. Actual employer payroll	82,793
C. Payment to transition liability/(surplus)	(9,101)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(11.28%)
B. Actual employer payroll	75,776
C. Payment to transition liability/(surplus)	(8,416)
4. Supplemental payment to transition liability	0
5. Interest	(16,538)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($237,042)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(237,042)	(238,021)
2. Combined valuation payroll	130,883	202,432
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(20.14%)**	**(12.37%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	130,883	202,432
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Grants Pass/2113
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Grants Pass/2113

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA	Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary	Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Grants Pass -- #2113

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Grants Pass to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Grants Pass.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Grants Pass

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.73%	14.47%	20.64%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.24%)	(1.24%)	(1.24%)	(1.24%)	(1.24%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.72%**	**25.46%**	**31.63%**	**19.48%**	**24.21%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**29.21%**	**25.95%**	**32.12%**	**19.90%**	**24.63%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Grants Pass

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$30,225,570	$25,510,113
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,999,119)	(2,028,244)
Allocated pooled OPSRP UAL	2,413,732	1,893,608
Side account	0	0
Net unfunded pension actuarial accrued liability	30,640,183	25,375,477
Combined valuation payroll	14,020,104	13,319,890
Net pension UAL as a percentage of payroll	219%	191%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.24%)	(1.29%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,909)	$64,677
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$1,154,464	$201,800	17.55%	$1,148,914	$201,634
Tier 2 General Service	12.54%	1,799,218	225,622	12.26%	1,786,265	218,996
Total General Service		**2,953,682**	**427,422**		**2,935,179**	**420,630**
Tier 1 Police & Fire	22.14%	1,245,210	275,689	21.37%	1,349,552	288,399
Tier 2 Police & Fire	19.73%	2,057,116	405,869	18.95%	1,969,765	373,270
Total Police & Fire		**3,302,326**	**681,558**		**3,319,317**	**661,669**
Total		**$6,256,008**	**$1,108,980**		**$6,254,496**	**$1,082,299**
Employer normal cost rate						
General Service			**14.47%**			**14.33%**
Police & Fire			**20.64%**			**19.93%**
Aggregate (Default)			**17.73%**			**17.30%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($2,028,244)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.24%)
B. Actual employer payroll	6,725,352
C. Payment to transition liability/(surplus)	(83,394)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.24%)
B. Actual employer payroll	6,871,262
C. Payment to transition liability/(surplus)	(85,204)
4. Supplemental payment to transition liability	0
5. Interest	(139,473)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,999,119)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,999,119)	(2,028,244)
2. Combined valuation payroll	14,020,104	13,319,890
3. Regular amortization factor	11.494	11.826
4. **Total transition liability/(surplus) rate**	**(1.24%)**	**(1.29%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	**Continuing**	**Total**
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	14,020,104	13,319,890
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Halsey/2284
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Halsey/2284

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Halsey/2284

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Halsey -- #2284

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Halsey to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Halsey.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Halsey

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.64%)	(6.64%)	(6.64%)	(6.64%)	(6.64%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.13%**	**18.13%**	**26.25%**	**14.08%**	**18.81%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**18.62%**	**18.62%**	**26.74%**	**14.50%**	**19.23%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Halsey

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$485,166	$428,520
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(134,449)	(152,131)
Allocated pooled OPSRP UAL	38,744	31,809
Side account	0	0
Net unfunded pension actuarial accrued liability	389,461	308,198
Combined valuation payroll	225,044	223,748
Net pension UAL as a percentage of payroll	173%	138%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.64%)	(7.15%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($31)	$1,086
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer’s Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	136,222	17,082	12.26%	145,007	17,778
Total General Service		**136,222**	**17,082**		**145,007**	**17,778**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$136,222**	**$17,082**		**$145,007**	**$17,778**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($152,131)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(12.68%)
B. Actual employer payroll	107,953
C. Payment to transition liability/(surplus)	(13,598)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(12.68%)
B. Actual employer payroll	107,051
C. Payment to transition liability/(surplus)	(13,464)
4. Supplemental payment to transition liability	0
5. Interest	(9,380)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($134,449)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(134,449)	(152,131)
2. Combined valuation payroll	225,044	223,748
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(6.64%)**	**(7.15%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	225,044	223,748
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Happy Valley/2296
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Happy Valley/2296

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Happy Valley -- #2296

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Happy Valley to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Happy Valley.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Happy Valley

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.75%	13.75%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.30%**	**24.30%**	**31.21%**	**19.04%**	**23.77%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.79%**	**24.79%**	**31.70%**	**19.46%**	**24.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Happy Valley

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$8,903,287	$6,861,672
Allocated pre-SLGRP pooled liability/(surplus)	(624,786)	(588,953)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	710,992	509,340
Side account	0	0
Net unfunded pension actuarial accrued liability	8,989,493	6,782,059
Combined valuation payroll	4,129,782	3,582,764
Net pension UAL as a percentage of payroll	218%	189%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.00%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($562)	$17,397
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$342,110	$59,801	17.55%	$461,053	$80,915
Tier 2 General Service	12.54%	1,050,241	131,700	12.26%	942,450	115,544
Total General Service		**1,392,351**	**191,501**		**1,403,503**	**196,459**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,392,351**	**$191,501**		**$1,403,503**	**$196,459**
Employer normal cost rate						
General Service			**13.75%**			**14.00%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**13.75%**			**14.00%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	**December 31, 2015**
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	4,129,782	3,582,764
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	4,129,782	3,582,764
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Harrisburg/2268
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Harrisburg/2268

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Harrisburg/2268

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Harrisburg -- #2268

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Harrisburg to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Harrisburg.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Harrisburg

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.51%	13.51%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.93%)	(0.93%)	(0.93%)	(0.93%)	(0.93%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.13%**	**23.13%**	**30.28%**	**18.11%**	**22.84%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.62%**	**23.62%**	**30.77%**	**18.53%**	**23.26%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Harrisburg

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,544,886	$1,368,698
Allocated pre-SLGRP pooled liability/(surplus)	(108,412)	(117,478)
Transition liability/(surplus)	(59,879)	(61,943)
Allocated pooled OPSRP UAL	123,370	101,598
Side account	0	0
Net unfunded pension actuarial accrued liability	1,499,965	1,290,875
Combined valuation payroll	716,594	714,654
Net pension UAL as a percentage of payroll	209%	181%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.93%)	(0.91%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($98)	$3,470
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$39,751	$6,948	17.55%	$44,098	$7,739
Tier 2 General Service	12.54%	162,884	20,426	12.26%	161,342	19,781
Total General Service		**202,635**	**27,374**		**205,440**	**27,520**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$202,635**	**$27,374**		**$205,440**	**$27,520**
Employer normal cost rate						
General Service			**13.51%**			**13.40%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**13.51%**			**13.40%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($61,943)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.89%)
B. Actual employer payroll	347,652
C. Payment to transition liability/(surplus)	(3,094)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.89%)
B. Actual employer payroll	353,705
C. Payment to transition liability/(surplus)	(3,148)
4. Supplemental payment to transition liability	0
5. Interest	(4,178)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($59,879)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(59,879)	(61,943)
2. Combined valuation payroll	716,594	714,654
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.93%)**	**(0.91%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	716,594	714,654
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Heppner/2193
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Heppner/2193

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Heppner/2193

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Heppner -- #2193

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Heppner to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Heppner.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Heppner

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(17.34%)	(17.34%)	(17.34%)	(17.34%)	(17.34%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**9.17%**	**8.05%**	**13.87%**	**1.70%**	**6.43%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**9.66%**	**8.54%**	**14.36%**	**2.12%**	**6.85%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Heppner

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$666,641	$470,388
Allocated pre-SLGRP pooled liability/(surplus)	(46,781)	(40,374)
Transition liability/(surplus)	(482,234)	(478,069)
Allocated pooled OPSRP UAL	53,236	34,917
Side account	0	0
Net unfunded pension actuarial accrued liability	190,862	(13,138)
Combined valuation payroll	309,221	245,609
Net pension UAL as a percentage of payroll	62%	(5%)
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(17.34%)	(20.48%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($42)	$1,193
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($478,069)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(16.96%)
B. Actual employer payroll	130,843
C. Payment to transition liability/(surplus)	(13,909)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(16.96%)
B. Actual employer payroll	146,473
C. Payment to transition liability/(surplus)	(15,570)
4. Supplemental payment to transition liability	0
5. Interest	(33,644)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($482,234)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(482,234)	(478,069)
2. Combined valuation payroll	309,221	245,609
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(17.34%)**	**(20.48%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	309,221	245,609
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Hermiston/2160
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Hermiston/2160

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Hermiston/2160

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Hermiston -- #2160

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Hermiston to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Hermiston.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Hermiston

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.40%	14.01%	20.32%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.31%)	(1.31%)	(1.31%)	(1.31%)	(1.31%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.32%**	**24.93%**	**31.24%**	**19.41%**	**24.14%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.81%**	**25.42%**	**31.73%**	**19.83%**	**24.56%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Hermiston

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$12,754,538	$11,064,402
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(699,390)	(728,571)
Allocated pooled OPSRP UAL	1,018,543	821,307
Side account	0	0
Net unfunded pension actuarial accrued liability	13,073,691	11,157,138
Combined valuation payroll	5,916,181	5,777,184
Net pension UAL as a percentage of payroll	221%	193%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.31%)	(1.33%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($806)	$28,052
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$561,499	$98,150	17.55%	$545,010	$95,649
Tier 2 General Service	12.54%	1,324,451	166,086	12.26%	1,431,638	175,519
Total General Service		**1,885,950**	**264,236**		**1,976,648**	**271,168**
Tier 1 Police & Fire	22.14%	280,716	62,151	21.37%	274,633	58,689
Tier 2 Police & Fire	19.73%	872,542	172,153	18.95%	779,485	147,712
Total Police & Fire		**1,153,258**	**234,304**		**1,054,118**	**206,401**
Total		**$3,039,208**	**$498,540**		**$3,030,766**	**$477,569**
Employer normal cost rate						
General Service			**14.01%**			**13.72%**
Police & Fire			**20.32%**			**19.58%**
Aggregate (Default)			**16.40%**			**15.76%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($728,571)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.36%)
B. Actual employer payroll	2,840,173
C. Payment to transition liability/(surplus)	(38,626)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.36%)
B. Actual employer payroll	2,893,424
C. Payment to transition liability/(surplus)	(39,350)
4. Supplemental payment to transition liability	0
5. Interest	(48,795)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($699,390)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(699,390)	(728,571)
2. Combined valuation payroll	5,916,181	5,777,184
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.31%)**	**(1.33%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	**Continuing**	**Total**
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	5,916,181	5,777,184
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Hines/2226
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Hines/2226

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Hines/2226

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Hines -- #2226

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Hines to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Hines.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Hines

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.17%)	(1.17%)	(1.17%)	(1.17%)	(1.17%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.34%**	**24.22%**	**30.04%**	**17.87%**	**22.60%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.83%**	**24.71%**	**30.53%**	**18.29%**	**23.02%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Hines

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$750,513	$559,412
Allocated pre-SLGRP pooled liability/(surplus)	(52,667)	(48,016)
Transition liability/(surplus)	(36,551)	(36,765)
Allocated pooled OPSRP UAL	59,934	41,525
Side account	0	0
Net unfunded pension actuarial accrued liability	721,229	516,156
Combined valuation payroll	348,125	292,092
Net pension UAL as a percentage of payroll	207%	177%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(1.17%)	(1.32%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($47)	$1,418
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	60,730	7,445
Total General Service		**0**	**0**		**60,730**	**7,445**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$60,730**	**$7,445**
Employer normal cost rate						
General Service			**14.84%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($36,765)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.01%)
B. Actual employer payroll	112,540
C. Payment to transition liability/(surplus)	(1,137)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.01%)
B. Actual employer payroll	161,079
C. Payment to transition liability/(surplus)	(1,627)
4. Supplemental payment to transition liability	0
5. Interest	(2,550)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($36,551)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(36,551)	(36,765)
2. Combined valuation payroll	348,125	292,092
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.17%)**	**(1.32%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	348,125	292,092
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Hood River/2138
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Hood River/2138

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Hood River -- #2138

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Hood River to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Hood River.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Hood River

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.60%	15.20%	20.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.00%)	(1.00%)	(1.00%)	(1.00%)	(1.00%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.15%**	**24.75%**	**30.28%**	**18.04%**	**22.77%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**28.64%**	**25.24%**	**30.77%**	**18.46%**	**23.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Hood River

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$9,177,855	$7,826,464
Allocated pre-SLGRP pooled liability/(surplus)	(644,053)	(671,763)
Transition liability/(surplus)	(381,839)	(403,709)
Allocated pooled OPSRP UAL	732,919	580,956
Side account	0	0
Net unfunded pension actuarial accrued liability	8,884,882	7,331,948
Combined valuation payroll	4,257,140	4,086,522
Net pension UAL as a percentage of payroll	209%	179%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(1.00%)	(1.04%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($580)	$19,843
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer’s combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$509,220	$89,012	17.55%	$444,549	$78,018
Tier 2 General Service	12.54%	435,665	54,632	12.26%	420,651	51,572
Total General Service		**944,885**	**143,644**		**865,200**	**129,590**
Tier 1 Police & Fire	22.14%	625,331	138,448	21.37%	629,139	134,447
Tier 2 Police & Fire	19.73%	880,740	173,770	18.95%	975,752	184,905
Total Police & Fire		**1,506,071**	**312,218**		**1,604,891**	**319,352**
Total		**$2,450,956**	**$455,862**		**$2,470,091**	**$448,942**
Employer normal cost rate						
General Service			**15.20%**			**14.98%**
Police & Fire			**20.73%**			**19.90%**
Aggregate (Default)			**18.60%**			**18.18%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($403,709)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.15%)
B. Actual employer payroll	2,040,889
C. Payment to transition liability/(surplus)	(23,470)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.15%)
B. Actual employer payroll	2,177,335
C. Payment to transition liability/(surplus)	(25,040)
4. Supplemental payment to transition liability	0
5. Interest	(26,640)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($381,839)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(381,839)	(403,709)
2. Combined valuation payroll	4,257,140	4,086,522
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.00%)**	**(1.04%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	4,257,140	4,086,522
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Hubbard/2196
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Hubbard/2196

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Hubbard -- #2196

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Hubbard to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Hubbard.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Hubbard

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.55%	16.52%	21.36%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(0.17%)	(0.17%)	(0.17%)	(0.17%)	(0.17%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**30.61%**	**28.58%**	**33.42%**	**20.55%**	**25.28%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**31.10%**	**29.07%**	**33.91%**	**20.97%**	**25.70%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Hubbard

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,445,039	$1,273,666
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(10,433)	(10,678)
Allocated pooled OPSRP UAL	115,397	94,544
Side account	0	0
Net unfunded pension actuarial accrued liability	1,550,003	1,357,532
Combined valuation payroll	670,280	665,034
Net pension UAL as a percentage of payroll	231%	204%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(0.17%)	(0.17%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($91)	$3,229
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$209,516	$36,623	17.55%	$202,653	$35,566
Tier 2 General Service	12.54%	50,819	6,373	12.26%	46,277	5,674
Total General Service		**260,335**	**42,996**		**248,930**	**41,240**
Tier 1 Police & Fire	22.14%	127,497	28,228	21.37%	117,818	25,178
Tier 2 Police & Fire	19.73%	61,425	12,119	18.95%	54,237	10,278
Total Police & Fire		**188,922**	**40,347**		**172,055**	**35,456**
Total		**$449,257**	**$83,343**		**$420,985**	**$76,696**
Employer normal cost rate						
General Service			**16.52%**			**16.57%**
Police & Fire			**21.36%**			**20.61%**
Aggregate (Default)			**18.55%**			**18.22%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($10,678)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.15%)
B. Actual employer payroll	324,756
C. Payment to transition liability/(surplus)	(487)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.15%)
B. Actual employer payroll	323,748
C. Payment to transition liability/(surplus)	(486)
4. Supplemental payment to transition liability	0
5. Interest	(728)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($10,433)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	**December 31, 2015**
1. Total transition liability/(surplus)	(10,433)	(10,678)
2. Combined valuation payroll	670,280	665,034
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.17%)**	**(0.17%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	670,280	665,034
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Huntington/2191
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Huntington/2191

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Huntington/2191

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Huntington -- #2191

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Huntington to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Huntington.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Huntington

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	36.14%	36.14%	36.14%	36.14%	36.14%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**62.65%**	**61.53%**	**67.35%**	**55.18%**	**59.91%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**63.14%**	**62.02%**	**67.84%**	**55.60%**	**60.33%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Huntington

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$203,924	$223,725
Allocated pre-SLGRP pooled liability/(surplus)	(14,310)	(19,203)
Transition liability/(surplus)	307,475	319,111
Allocated pooled OPSRP UAL	16,285	16,607
Side account	0	0
Net unfunded pension actuarial accrued liability	513,374	540,240
Combined valuation payroll	94,590	116,816
Net pension UAL as a percentage of payroll	543%	462%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	36.14%	28.74%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($13)	$567
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$319,111
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	33.54%
B. Actual employer payroll	51,489
C. Payment to transition liability/(surplus)	17,270
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	33.54%
B. Actual employer payroll	47,164
C. Payment to transition liability/(surplus)	15,818
4. Supplemental payment to transition liability	0
5. Interest	21,452
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$307,475**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	307,475	319,111
2. Combined valuation payroll	94,590	116,816
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**36.14%**	**28.74%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	94,590	116,816
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Imbler/2306
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Imbler/2306

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Imbler -- #2306

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Imbler to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Imbler.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Imbler

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.53%	0.53%	0.53%	0.53%	0.53%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.04%**	**25.92%**	**31.74%**	**19.57%**	**24.30%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.53%**	**26.41%**	**32.23%**	**19.99%**	**24.72%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Imbler

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$8,587	$0
Allocated pre-SLGRP pooled liability/(surplus)	(603)	0
Transition liability/(surplus)	189	176
Allocated pooled OPSRP UAL	686	0
Side account	0	0
Net unfunded pension actuarial accrued liability	8,859	176
Combined valuation payroll	3,983	0
Net pension UAL as a percentage of payroll	222%	0%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.53%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1)	$0
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**16.05%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$176
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	3,800
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	13
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$189**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	189	176
2. Combined valuation payroll	3,983	0
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**0.53%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	3,983	0
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Independence/2267
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Independence/2267

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Independence/2267

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Independence -- #2267

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Independence to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Independence.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Independence

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.77%	15.83%	21.53%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.46%)	(2.46%)	(2.46%)	(2.46%)	(2.46%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.86%**	**23.92%**	**29.62%**	**16.58%**	**21.31%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.35%**	**24.41%**	**30.11%**	**17.00%**	**21.73%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Independence

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$6,061,098	$5,121,967
Allocated pre-SLGRP pooled liability/(surplus)	(425,336)	(439,630)
Transition liability/(surplus)	(621,748)	(657,484)
Allocated pooled OPSRP UAL	484,023	380,202
Side account	0	0
Net unfunded pension actuarial accrued liability	5,498,037	4,405,055
Combined valuation payroll	2,811,435	2,674,392
Net pension UAL as a percentage of payroll	196%	165%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(2.46%)	(2.59%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($383)	$12,986
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$502,430	$87,825	17.55%	$501,267	$87,972
Tier 2 General Service	12.54%	252,727	31,692	12.26%	242,810	29,769
Total General Service		**755,157**	**119,517**		**744,077**	**117,741**
Tier 1 Police & Fire	22.14%	292,567	64,774	21.37%	292,953	62,604
Tier 2 Police & Fire	19.73%	98,192	19,373	18.95%	174,656	33,097
Total Police & Fire		**390,759**	**84,147**		**467,609**	**95,701**
Total		**$1,145,916**	**$203,664**		**$1,211,686**	**$213,442**
Employer normal cost rate						
General Service			**15.83%**			**15.82%**
Police & Fire			**21.53%**			**20.47%**
Aggregate (Default)			**17.77%**			**17.62%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($657,484)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(2.88%)
B. Actual employer payroll	1,326,267
C. Payment to transition liability/(surplus)	(38,196)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(2.88%)
B. Actual employer payroll	1,420,759
C. Payment to transition liability/(surplus)	(40,918)
4. Supplemental payment to transition liability	0
5. Interest	(43,378)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($621,748)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(621,748)	(657,484)
2. Combined valuation payroll	2,811,435	2,674,392
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.46%)**	**(2.59%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,811,435	2,674,392
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Irrigon/2266
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Irrigon/2266

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Irrigon -- #2266

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Irrigon to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Irrigon.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Irrigon

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.97%	13.97%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.42%)	(1.42%)	(1.42%)	(1.42%)	(1.42%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.10%**	**23.10%**	**29.79%**	**17.62%**	**22.35%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.59%**	**23.59%**	**30.28%**	**18.04%**	**22.77%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Irrigon

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,010,372	$881,200
Allocated pre-SLGRP pooled liability/(surplus)	(70,903)	(75,635)
Transition liability/(surplus)	(59,926)	(62,384)
Allocated pooled OPSRP UAL	80,686	65,411
Side account	0	0
Net unfunded pension actuarial accrued liability	960,229	808,592
Combined valuation payroll	468,660	460,111
Net pension UAL as a percentage of payroll	205%	176%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(1.42%)	(1.43%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($64)	$2,234
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$80,720	$14,110	17.55%	$78,781	$13,826
Tier 2 General Service	12.54%	197,685	24,790	12.26%	196,624	24,106
Total General Service		**278,405**	**38,900**		**275,405**	**37,932**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$278,405**	**$38,900**		**$275,405**	**$37,932**
Employer normal cost rate						
General Service			**13.97%**			**13.77%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**13.97%**			**13.77%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($62,384)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.48%)
B. Actual employer payroll	217,027
C. Payment to transition liability/(surplus)	(3,212)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.48%)
B. Actual employer payroll	231,578
C. Payment to transition liability/(surplus)	(3,427)
4. Supplemental payment to transition liability	0
5. Interest	(4,181)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($59,926)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(59,926)	(62,384)
2. Combined valuation payroll	468,660	460,111
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.42%)**	**(1.43%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	468,660	460,111
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Jefferson/2211
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Jefferson/2211

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Jefferson -- #2211

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Jefferson to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Jefferson.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Jefferson

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.50%	14.50%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(41.96%)	(41.96%)	(41.96%)	(41.96%)	(41.96%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Jefferson

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$787,101	$568,949
Allocated pre-SLGRP pooled liability/(surplus)	(55,235)	(48,834)
Transition liability/(surplus)	(1,377,779)	(1,330,632)
Allocated pooled OPSRP UAL	62,856	42,233
Side account	0	0
Net unfunded pension actuarial accrued liability	(583,057)	(768,284)
Combined valuation payroll	365,096	297,072
Net pension UAL as a percentage of payroll	(160%)	(259%)
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(41.96%)	(47.13%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($50)	$1,442
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$71,132	$12,434	17.55%	$104,546	$18,348
Tier 2 General Service	12.54%	108,260	13,576	12.26%	83,764	10,269
Total General Service		**179,392**	**26,010**		**188,310**	**28,617**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$179,392**	**$26,010**		**$188,310**	**$28,617**
Employer normal cost rate						
General Service			**14.50%**			**15.20%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.50%**			**15.20%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,330,632)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(17.09%)
B. Actual employer payroll	173,062
C. Payment to transition liability/(surplus)	(24,520)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(17.09%)
B. Actual employer payroll	177,232
C. Payment to transition liability/(surplus)	(24,457)
4. Supplemental payment to transition liability	0
5. Interest	(96,124)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,377,779)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	**December 31, 2015**
1. Total transition liability/(surplus)	(1,377,779)	(1,330,632)
2. Combined valuation payroll	365,096	297,072
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(41.96%)**	**(47.13%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	365,096	297,072
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of John Day/2229
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of John Day/2229

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of John Day/2229

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of John Day -- #2229

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of John Day to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of John Day.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of John Day

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.15%	12.54%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(12.87%)	(12.87%)	(12.87%)	(12.87%)	(12.87%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**15.51%**	**11.90%**	**19.09%**	**7.85%**	**12.58%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**16.00%**	**12.39%**	**19.58%**	**8.27%**	**13.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of John Day

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,384,709	$1,458,365
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(743,320)	(755,355)
Allocated pooled OPSRP UAL	110,579	108,254
Side account	0	0
Net unfunded pension actuarial accrued liability	751,968	811,264
Combined valuation payroll	642,296	761,473
Net pension UAL as a percentage of payroll	117%	107%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(12.87%)	(10.44%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($87)	$3,697
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$75,218	$13,201
Tier 2 General Service	12.54%	120,351	15,092	12.26%	143,124	17,547
Total General Service		**120,351**	**15,092**		**218,342**	**30,748**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	121,652	24,002	18.95%	123,712	23,443
Total Police & Fire		**121,652**	**24,002**		**123,712**	**23,443**
Total		**$242,003**	**$39,094**		**$342,054**	**$54,191**
Employer normal cost rate						
General Service			**12.54%**			**14.08%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**16.15%**			**15.84%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($755,355)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(9.44%)
B. Actual employer payroll	369,416
C. Payment to transition liability/(surplus)	(34,873)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(9.44%)
B. Actual employer payroll	307,438
C. Payment to transition liability/(surplus)	(29,022)
4. Supplemental payment to transition liability	0
5. Interest	(51,860)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($743,320)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(743,320)	(755,355)
2. Combined valuation payroll	642,296	761,473
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(12.87%)**	**(10.44%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	642,296	761,473
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Jordan Valley/2256
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Jordan Valley/2256

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Jordan Valley/2256

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Jordan Valley -- #2256

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Jordan Valley to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Jordan Valley.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Jordan Valley

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(38.04%)	(38.04%)	(38.04%)	(38.04%)	(38.04%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Jordan Valley

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$133,177	$114,837
Allocated pre-SLGRP pooled liability/(surplus)	(9,346)	(9,857)
Transition liability/(surplus)	(211,334)	(204,358)
Allocated pooled OPSRP UAL	10,635	8,524
Side account	0	0
Net unfunded pension actuarial accrued liability	(76,868)	(90,854)
Combined valuation payroll	61,774	59,961
Net pension UAL as a percentage of payroll	(124%)	(152%)
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(38.04%)	(35.86%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($8)	$291
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	47,171	5,915	12.26%	45,246	5,547
Total General Service		**47,171**	**5,915**		**45,246**	**5,547**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$47,171**	**$5,915**		**$45,246**	**$5,547**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($204,358)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(13.87%)
B. Actual employer payroll	28,603
C. Payment to transition liability/(surplus)	(3,745)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(13.87%)
B. Actual employer payroll	30,618
C. Payment to transition liability/(surplus)	(4,023)
4. Supplemental payment to transition liability	0
5. Interest	(14,744)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($211,334)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(211,334)	(204,358)
2. Combined valuation payroll	61,774	59,961
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(38.04%)**	**(35.86%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	61,774	59,961
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Junction City/2199
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Junction City/2199

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Junction City/2199

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Junction City -- #2199

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Junction City to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Junction City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Junction City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.45%	13.71%	20.28%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.69%)	(0.69%)	(0.69%)	(0.69%)	(0.69%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.31%**	**23.57%**	**30.14%**	**18.35%**	**23.08%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.80%**	**24.06%**	**30.63%**	**18.77%**	**23.50%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Junction City

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$5,261,015	$4,641,651
Allocated pre-SLGRP pooled liability/(surplus)	(369,190)	(398,404)
Transition liability/(surplus)	(151,169)	(156,617)
Allocated pooled OPSRP UAL	420,130	344,548
Side account	0	0
Net unfunded pension actuarial accrued liability	5,160,786	4,431,178
Combined valuation payroll	2,440,317	2,423,599
Net pension UAL as a percentage of payroll	211%	183%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.69%)	(0.68%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($332)	$11,768
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$196,994	$34,435	17.55%	$193,117	$33,892
Tier 2 General Service	12.54%	637,012	79,881	12.26%	613,423	75,206
Total General Service		**834,006**	**114,316**		**806,540**	**109,098**
Tier 1 Police & Fire	22.14%	69,002	15,277	21.37%	168,416	35,990
Tier 2 Police & Fire	19.73%	231,232	45,622	18.95%	273,470	51,823
Total Police & Fire		**300,234**	**60,899**		**441,886**	**87,813**
Total		**$1,134,240**	**$175,215**		**$1,248,426**	**$196,911**
Employer normal cost rate						
General Service			**13.71%**			**13.53%**
Police & Fire			**20.28%**			**19.87%**
Aggregate (Default)			**15.45%**			**15.77%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($156,617)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.66%)
B. Actual employer payroll	1,229,441
C. Payment to transition liability/(surplus)	(8,114)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.66%)
B. Actual employer payroll	1,194,145
C. Payment to transition liability/(surplus)	(7,881)
4. Supplemental payment to transition liability	0
5. Interest	(10,547)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($151,169)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(151,169)	(156,617)
2. Combined valuation payroll	2,440,317	2,423,599
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.69%)**	**(0.68%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,440,317	2,423,599
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of King City/2287
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of King City/2287

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of King City/2287

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of King City -- #2287

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of King City to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of King City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of King City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	19.73%	14.84%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.73%)	(4.73%)	(4.73%)	(4.73%)	(4.73%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.23%**	**22.34%**	**27.23%**	**15.99%**	**20.72%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.72%**	**22.83%**	**27.72%**	**16.41%**	**21.14%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of King City

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$758,128	$708,371
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(149,480)	(156,795)
Allocated pooled OPSRP UAL	60,542	52,582
Side account	0	0
Net unfunded pension actuarial accrued liability	669,190	604,158
Combined valuation payroll	351,657	369,870
Net pension UAL as a percentage of payroll	190%	163%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.73%)	(4.46%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($48)	$1,796
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	272,311	53,727	18.95%	225,389	42,711
Total Police & Fire		**272,311**	**53,727**		**225,389**	**42,711**
Total		**$272,311**	**$53,727**		**$225,389**	**$42,711**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**19.73%**			**18.95%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($156,795)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.20%)
B. Actual employer payroll	169,029
C. Payment to transition liability/(surplus)	(8,790)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.20%)
B. Actual employer payroll	172,194
C. Payment to transition liability/(surplus)	(8,954)
4. Supplemental payment to transition liability	0
5. Interest	(10,429)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($149,480)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(149,480)	(156,795)
2. Combined valuation payroll	351,657	369,870
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(4.73%)**	**(4.46%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	351,657	369,870
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Klamath Falls/2148
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Klamath Falls/2148

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Klamath Falls -- #2148

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Klamath Falls to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Klamath Falls.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Klamath Falls

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.35%	15.23%	19.96%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(6.87%)	(6.87%)	(6.87%)	(6.87%)	(6.87%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.03%**	**18.91%**	**23.64%**	**12.17%**	**16.90%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**21.52%**	**19.40%**	**24.13%**	**12.59%**	**17.32%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Klamath Falls

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$20,810,282	$17,984,045
Allocated pre-SLGRP pooled liability/(surplus)	(1,460,356)	(1,543,612)
Transition liability/(surplus)	(5,965,252)	(6,180,707)
Allocated pooled OPSRP UAL	1,661,853	1,334,950
Side account	0	0
Net unfunded pension actuarial accrued liability	15,046,527	11,594,676
Combined valuation payroll	9,652,831	9,390,217
Net pension UAL as a percentage of payroll	156%	123%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(6.87%)	(6.93%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,314)	$45,596
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$1,548,364	$270,654	17.55%	$1,722,575	$302,312
Tier 2 General Service	12.54%	1,291,287	161,927	12.26%	1,392,636	170,737
Total General Service		**2,839,651**	**432,581**		**3,115,211**	**473,049**
Tier 1 Police & Fire	22.14%	216,972	48,038	21.37%	323,358	69,102
Tier 2 Police & Fire	19.73%	2,083,237	411,023	18.95%	2,022,244	383,215
Total Police & Fire		**2,300,209**	**459,061**		**2,345,602**	**452,317**
Total		**$5,139,860**	**$891,642**		**$5,460,813**	**$925,366**
Employer normal cost rate						
General Service			**15.23%**			**15.19%**
Police & Fire			**19.96%**			**19.28%**
Aggregate (Default)			**17.35%**			**16.95%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($6,180,707)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(6.71%)
B. Actual employer payroll	4,688,552
C. Payment to transition liability/(surplus)	(314,602)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(6.71%)
B. Actual employer payroll	4,724,799
C. Payment to transition liability/(surplus)	(317,033)
4. Supplemental payment to transition liability	0
5. Interest	(416,180)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($5,965,252)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(5,965,252)	(6,180,707)
2. Combined valuation payroll	9,652,831	9,390,217
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(6.87%)**	**(6.93%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	**Continuing**	**Total**
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	9,652,831	9,390,217
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of La Grande/2263
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of La Grande/2263

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of La Grande/2263

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of La Grande -- #2263

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of La Grande to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of La Grande.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of La Grande

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.67%	14.84%	20.67%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(4.92%)	(4.92%)	(4.92%)	(4.92%)	(4.92%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.30%**	**20.47%**	**26.30%**	**14.12%**	**18.85%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.79%**	**20.96%**	**26.79%**	**14.54%**	**19.27%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of La Grande

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$5,095,168	$4,347,547
Allocated pre-SLGRP pooled liability/(surplus)	(357,552)	(373,160)
Transition liability/(surplus)	(1,046,729)	(1,082,033)
Allocated pooled OPSRP UAL	406,886	322,717
Side account	0	0
Net unfunded pension actuarial accrued liability	4,097,773	3,215,071
Combined valuation payroll	2,363,389	2,270,035
Net pension UAL as a percentage of payroll	173%	142%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(4.92%)	(5.02%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($322)	$11,023
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	471,837	104,465	21.37%	606,482	129,605
Tier 2 Police & Fire	19.73%	742,346	146,465	18.95%	711,853	134,896
Total Police & Fire		**1,214,183**	**250,930**		**1,318,335**	**264,501**
Total		**$1,214,183**	**$250,930**		**$1,318,335**	**$264,501**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.67%**			**20.06%**
Aggregate (Default)			**20.67%**			**20.06%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,082,033)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.81%)
B. Actual employer payroll	1,118,747
C. Payment to transition liability/(surplus)	(53,812)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.81%)
B. Actual employer payroll	1,133,496
C. Payment to transition liability/(surplus)	(54,520)
4. Supplemental payment to transition liability	0
5. Interest	(73,028)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,046,729)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,046,729)	(1,082,033)
2. Combined valuation payroll	2,363,389	2,270,035
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(4.92%)**	**(5.02%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,363,389	2,270,035
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Lafayette/2233
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Lafayette/2233

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lafayette -- #2233

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lafayette to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lafayette.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Lafayette

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.04%	14.04%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.42%)	(4.42%)	(4.42%)	(4.42%)	(4.42%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.85%**	**21.85%**	**28.47%**	**16.30%**	**21.03%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**22.34%**	**22.34%**	**28.96%**	**16.72%**	**21.45%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lafayette

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,092,978	$989,188
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(201,716)	(209,871)
Allocated pooled OPSRP UAL	87,282	73,427
Side account	0	0
Net unfunded pension actuarial accrued liability	978,544	852,744
Combined valuation payroll	506,977	516,496
Net pension UAL as a percentage of payroll	193%	165%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.42%)	(4.28%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($69)	$2,508
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$95,728	$16,733	17.55%	$95,829	$16,818
Tier 2 General Service	12.54%	219,739	27,555	12.26%	228,753	28,045
Total General Service		**315,467**	**44,288**		**324,582**	**44,863**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$315,467**	**$44,288**		**$324,582**	**$44,863**
Employer normal cost rate						
General Service			**14.04%**			**13.82%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.04%**			**13.82%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($209,871)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.46%)
B. Actual employer payroll	243,546
C. Payment to transition liability/(surplus)	(10,862)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.46%)
B. Actual employer payroll	254,830
C. Payment to transition liability/(surplus)	(11,366)
4. Supplemental payment to transition liability	0
5. Interest	(14,073)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($201,716)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(201,716)	(209,871)
2. Combined valuation payroll	506,977	516,496
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(4.42%)**	**(4.28%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	506,977	516,496
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Lake Oswego/2120
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Lake Oswego/2120

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lake Oswego -- #2120

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lake Oswego to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lake Oswego.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Lake Oswego

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.71%	15.10%	20.82%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.06%)	(1.06%)	(1.06%)	(1.06%)	(1.06%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.88%**	**26.27%**	**31.99%**	**19.66%**	**24.39%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**29.37%**	**26.76%**	**32.48%**	**20.08%**	**24.81%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lake Oswego

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$56,507,645	$49,091,104
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,497,446)	(2,582,729)
Allocated pooled OPSRP UAL	4,512,547	3,644,018
Side account	0	0
Net unfunded pension actuarial accrued liability	58,522,746	50,152,393
Combined valuation payroll	26,211,021	25,632,505
Net pension UAL as a percentage of payroll	223%	196%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.06%)	(1.06%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,569)	$124,463
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$4,024,283	$703,445	17.55%	$4,123,474	$723,670
Tier 2 General Service	12.54%	3,746,173	469,770	12.26%	3,550,732	435,320
Total General Service		**7,770,456**	**1,173,215**		**7,674,206**	**1,158,990**
Tier 1 Police & Fire	22.14%	2,948,623	652,825	21.37%	3,695,626	789,755
Tier 2 Police & Fire	19.73%	3,600,227	710,325	18.95%	3,510,448	665,230
Total Police & Fire		**6,548,850**	**1,363,150**		**7,206,074**	**1,454,985**
Total		**$14,319,306**	**$2,536,365**		**$14,880,280**	**$2,613,975**
Employer normal cost rate						
General Service			**15.10%**			**15.10%**
Police & Fire			**20.82%**			**20.19%**
Aggregate (Default)			**17.71%**			**17.57%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($2,582,729)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.02%)
B. Actual employer payroll	12,373,599
C. Payment to transition liability/(surplus)	(126,211)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.02%)
B. Actual employer payroll	13,069,826
C. Payment to transition liability/(surplus)	(133,312)
4. Supplemental payment to transition liability	0
5. Interest	(174,240)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,497,446)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(2,497,446)	(2,582,729)
2. Combined valuation payroll	26,211,021	25,632,505
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.06%)**	**(1.06%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	26,211,021	25,632,505
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Lakeside/2244
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Lakeside/2244

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Lakeside/2244

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lakeside -- #2244

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lakeside to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lakeside.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Lakeside

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(10.94%)	(10.94%)	(10.94%)	(10.94%)	(10.94%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**12.15%**	**12.15%**	**20.27%**	**8.10%**	**12.83%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**12.64%**	**12.64%**	**20.76%**	**8.52%**	**13.25%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lakeside

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$629,819	$719,667
Allocated pre-SLGRP pooled liability/(surplus)	(44,197)	(61,771)
Transition liability/(surplus)	(287,392)	(293,489)
Allocated pooled OPSRP UAL	50,296	53,421
Side account	0	0
Net unfunded pension actuarial accrued liability	348,526	417,828
Combined valuation payroll	292,141	375,768
Net pension UAL as a percentage of payroll	119%	111%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(10.94%)	(8.22%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($40)	$1,825
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	56,942	7,141	12.26%	57,157	7,007
Total General Service		**56,942**	**7,141**		**57,157**	**7,007**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$56,942**	**$7,141**		**$57,157**	**$7,007**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($293,489)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate [1]	(7.37%)
B. Actual employer payroll	190,764
C. Payment to transition liability/(surplus)	(14,059)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate [1]	(7.37%)
B. Actual employer payroll	164,031
C. Payment to transition liability/(surplus)	(12,089)
4. Supplemental payment to transition liability	0
5. Interest	(20,051)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($287,392)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(287,392)	(293,489)
2. Combined valuation payroll	292,141	375,768
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(10.94%)**	**(8.22%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	292,141	375,768
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Lebanon/2140
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Lebanon/2140

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lebanon -- #2140

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lebanon to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lebanon.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Lebanon

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.49%	16.19%	20.24%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.56%)	(5.56%)	(5.56%)	(5.56%)	(5.56%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.16%**	**22.86%**	**26.91%**	**15.16%**	**19.89%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.65%**	**23.35%**	**27.40%**	**15.58%**	**20.31%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lebanon

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$12,898,283	$10,778,658
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,994,161)	(3,104,143)
Allocated pooled OPSRP UAL	1,030,022	800,097
Side account	0	0
Net unfunded pension actuarial accrued liability	10,934,144	8,474,612
Combined valuation payroll	5,982,857	5,627,985
Net pension UAL as a percentage of payroll	183%	151%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.56%)	(5.80%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($815)	$27,328
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$1,398,417	$244,443	17.55%	$1,340,277	$235,219
Tier 2 General Service	12.54%	495,825	62,176	12.26%	478,850	58,707
Total General Service		**1,894,242**	**306,619**		**1,819,127**	**293,926**
Tier 1 Police & Fire	22.14%	191,278	42,349	21.37%	187,635	40,098
Tier 2 Police & Fire	19.73%	705,680	139,231	18.95%	698,076	132,285
Total Police & Fire		**896,958**	**181,580**		**885,711**	**172,383**
Total		**$2,791,200**	**$488,199**		**$2,704,838**	**$466,309**
Employer normal cost rate						
General Service			**16.19%**			**16.16%**
Police & Fire			**20.24%**			**19.46%**
Aggregate (Default)			**17.49%**			**17.24%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($3,104,143)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.63%)
B. Actual employer payroll	2,754,707
C. Payment to transition liability/(surplus)	(155,090)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.63%)
B. Actual employer payroll	2,909,183
C. Payment to transition liability/(surplus)	(163,787)
4. Supplemental payment to transition liability	0
5. Interest	(208,895)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,994,161)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(2,994,161)	(3,104,143)
2. Combined valuation payroll	5,982,857	5,627,985
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.56%)**	**(5.80%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	5,982,857	5,627,985
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Lincoln City/2298
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Lincoln City/2298

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Lincoln City/2298

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lincoln City -- #2298

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lincoln City to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lincoln City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Lincoln City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.75%	14.54%	21.54%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.33%)	(6.33%)	(6.33%)	(6.33%)	(6.33%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.65%**	**20.44%**	**27.44%**	**14.39%**	**19.12%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.14%**	**20.93%**	**27.93%**	**14.81%**	**19.54%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lincoln City

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$15,578,042	$13,340,141
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(4,114,692)	(4,247,599)
Allocated pooled OPSRP UAL	1,244,020	990,235
Side account	0	0
Net unfunded pension actuarial accrued liability	12,707,370	10,082,777
Combined valuation payroll	7,225,861	6,965,442
Net pension UAL as a percentage of payroll	176%	145%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.33%)	(6.42%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($984)	$33,822
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$726,699	$127,027	17.55%	$854,037	$149,883
Tier 2 General Service	12.54%	1,069,234	134,082	12.26%	1,018,078	124,816
Total General Service		**1,795,933**	**261,109**		**1,872,115**	**274,699**
Tier 1 Police & Fire	22.14%	622,339	137,786	21.37%	560,337	119,744
Tier 2 Police & Fire	19.73%	205,320	40,510	18.95%	298,466	56,559
Total Police & Fire		**827,659**	**178,296**		**858,803**	**176,303**
Total		**$2,623,592**	**$439,405**		**$2,730,918**	**$451,002**
Employer normal cost rate						
General Service			**14.54%**			**14.67%**
Police & Fire			**21.54%**			**20.53%**
Aggregate (Default)			**16.75%**			**16.51%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($4,247,599)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.79%)
B. Actual employer payroll	3,516,116
C. Payment to transition liability/(surplus)	(203,583)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.79%)
B. Actual employer payroll	3,737,392
C. Payment to transition liability/(surplus)	(216,396)
4. Supplemental payment to transition liability	0
5. Interest	(287,072)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($4,114,692)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(4,114,692)	(4,247,599)
2. Combined valuation payroll	7,225,861	6,965,442
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(6.33%)**	**(6.42%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	7,225,861	6,965,442
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Lowell/2293
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Lowell/2293

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lowell -- #2293

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lowell to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lowell.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Lowell

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.86%)	(3.86%)	(3.86%)	(3.86%)	(3.86%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.33%**	**23.21%**	**29.03%**	**16.86%**	**21.59%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.82%**	**23.70%**	**29.52%**	**17.28%**	**22.01%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lowell

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$460,475	$368,820
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(74,195)	(77,704)
Allocated pooled OPSRP UAL	36,772	27,377
Side account	0	0
Net unfunded pension actuarial accrued liability	423,052	318,493
Combined valuation payroll	213,591	192,576
Net pension UAL as a percentage of payroll	198%	165%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.86%)	(4.25%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($29)	$935
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($77,704)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(3.51%)
B. Actual employer payroll	114,103
C. Payment to transition liability/(surplus)	(4,005)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(3.51%)
B. Actual employer payroll	133,339
C. Payment to transition liability/(surplus)	(4,680)
4. Supplemental payment to transition liability	0
5. Interest	(5,176)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($74,195)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(74,195)	(77,704)
2. Combined valuation payroll	213,591	192,576
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(3.86%)**	**(4.25%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	213,591	192,576
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Lyons/2270
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Lyons/2270

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Lyons/2270

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lyons -- #2270

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lyons to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lyons.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Lyons

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.48%	17.48%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.91%)	(2.91%)	(2.91%)	(2.91%)	(2.91%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.80%**	**26.80%**	**29.98%**	**17.81%**	**22.54%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.29%**	**27.29%**	**30.47%**	**18.23%**	**22.96%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lyons

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$149,773	$130,840
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(18,161)	(18,095)
Allocated pooled OPSRP UAL	11,960	9,712
Side account	0	0
Net unfunded pension actuarial accrued liability	143,572	122,457
Combined valuation payroll	69,472	68,317
Net pension UAL as a percentage of payroll	207%	179%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.91%)	(2.79%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($9)	$332
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$26,870	$4,697	17.55%	$27,856	$4,889
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**26,870**	**4,697**		**27,856**	**4,889**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$26,870**	**$4,697**		**$27,856**	**$4,889**
Employer normal cost rate						
General Service			**17.48%**			**17.55%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**17.48%**			**17.55%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($18,095)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.76%)
B. Actual employer payroll	28,301
C. Payment to transition liability/(surplus)	(498)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.76%)
B. Actual employer payroll	39,932
C. Payment to transition liability/(surplus)	(703)
4. Supplemental payment to transition liability	0
5. Interest	(1,267)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($18,161)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(18,161)	(18,095)
2. Combined valuation payroll	69,472	68,317
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.91%)**	**(2.79%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	69,472	68,317
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Madras/2170
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Madras/2170

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Madras/2170

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Madras -- #2170

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Madras to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Madras.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Madras

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.79%	15.19%	20.94%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.54%)	(3.54%)	(3.54%)	(3.54%)	(3.54%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.48%**	**23.88%**	**29.63%**	**17.18%**	**21.91%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.97%**	**24.37%**	**30.12%**	**17.60%**	**22.33%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Madras

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$3,804,334	$3,397,232
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(562,238)	(575,750)
Allocated pooled OPSRP UAL	303,804	252,176
Side account	0	0
Net unfunded pension actuarial accrued liability	3,545,900	3,073,658
Combined valuation payroll	1,764,637	1,773,836
Net pension UAL as a percentage of payroll	201%	173%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.54%)	(3.42%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($240)	$8,613
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$195,023	$34,090	17.55%	$200,848	$35,249
Tier 2 General Service	12.54%	168,851	21,174	12.26%	141,489	17,347
Total General Service		**363,874**	**55,264**		**342,337**	**52,596**
Tier 1 Police & Fire	22.14%	150,854	33,399	21.37%	206,213	44,068
Tier 2 Police & Fire	19.73%	150,665	29,726	18.95%	151,967	28,798
Total Police & Fire		**301,519**	**63,125**		**358,180**	**72,866**
Total		**$665,393**	**$118,389**		**$700,517**	**$125,462**
Employer normal cost rate						
General Service			**15.19%**			**15.36%**
Police & Fire			**20.94%**			**20.34%**
Aggregate (Default)			**17.79%**			**17.91%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($575,750)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(2.98%)
B. Actual employer payroll	885,358
C. Payment to transition liability/(surplus)	(26,384)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(2.98%)
B. Actual employer payroll	884,385
C. Payment to transition liability/(surplus)	(26,354)
4. Supplemental payment to transition liability	0
5. Interest	(39,226)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($562,238)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(562,238)	(575,750)
2. Combined valuation payroll	1,764,637	1,773,836
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(3.54%)**	**(3.42%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,764,637	1,773,836
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Malin/2247
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Malin/2247

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Malin -- #2247

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Malin to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Malin.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Malin

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.93%	14.93%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(3.64%)	(3.64%)	(3.64%)	(3.64%)	(3.64%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.84%**	**21.84%**	**27.57%**	**15.40%**	**20.13%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**22.33%**	**22.33%**	**28.06%**	**15.82%**	**20.55%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Malin

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$228,143	$202,190
Allocated pre-SLGRP pooled liability/(surplus)	(16,010)	(17,354)
Transition liability/(surplus)	(34,619)	(35,676)
Allocated pooled OPSRP UAL	18,219	15,009
Side account	0	0
Net unfunded pension actuarial accrued liability	195,733	164,169
Combined valuation payroll	105,824	105,572
Net pension UAL as a percentage of payroll	185%	156%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(3.64%)	(3.56%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($14)	$513
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$48,714	$8,515	17.55%	$49,160	$8,628
Tier 2 General Service	12.54%	51,854	6,502	12.26%	50,912	6,242
Total General Service		**100,568**	**15,017**		**100,072**	**14,870**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$100,568**	**$15,017**		**$100,072**	**$14,870**
Employer normal cost rate						
General Service			**14.93%**			**14.86%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.93%**			**14.86%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($35,676)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(3.40%)
B. Actual employer payroll	50,384
C. Payment to transition liability/(surplus)	(1,713)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(3.40%)
B. Actual employer payroll	51,729
C. Payment to transition liability/(surplus)	(1,759)
4. Supplemental payment to transition liability	0
5. Interest	(2,415)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($34,619)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(34,619)	(35,676)
2. Combined valuation payroll	105,824	105,572
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(3.64%)**	**(3.56%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	105,824	105,572
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Manzanita/2281
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Manzanita/2281

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Manzanita -- #2281

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Manzanita to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Manzanita.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Manzanita

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	19.73%	14.84%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.26%)	(1.26%)	(1.26%)	(1.26%)	(1.26%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.02%**	**24.13%**	**29.02%**	**17.78%**	**22.51%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**29.51%**	**24.62%**	**29.51%**	**18.20%**	**22.93%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Manzanita

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,139,144	$1,230,023
Allocated pre-SLGRP pooled liability/(surplus)	(79,939)	(105,576)
Transition liability/(surplus)	(59,939)	(61,609)
Allocated pooled OPSRP UAL	90,969	91,304
Side account	0	0
Net unfunded pension actuarial accrued liability	1,090,235	1,154,142
Combined valuation payroll	528,391	642,246
Net pension UAL as a percentage of payroll	206%	180%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(1.26%)	(1.01%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($72)	$3,119
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$104,958	$18,420
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**104,958**	**18,420**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	111,475	21,994	18.95%	137,826	26,118
Total Police & Fire		**111,475**	**21,994**		**137,826**	**26,118**
Total		**$111,475**	**$21,994**		**$242,784**	**$44,538**
Employer normal cost rate						
General Service			**14.84%**			**17.55%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**19.73%**			**18.34%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($61,609)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.03%)
B. Actual employer payroll	284,950
C. Payment to transition liability/(surplus)	(2,935)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.03%)
B. Actual employer payroll	283,238
C. Payment to transition liability/(surplus)	(2,917)
4. Supplemental payment to transition liability	0
5. Interest	(4,182)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($59,939)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(59,939)	(61,609)
2. Combined valuation payroll	528,391	642,246
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.26%)**	**(1.01%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	528,391	642,246
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of McMinnville/2117
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of McMinnville/2117

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of McMinnville -- #2117

November 2017

Secondary Employers

2135 McMinnville Water & Light Department

CONTENTS

Executive Summary

Milliman has prepared this report for City of McMinnville to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of McMinnville.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of McMinnville

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.32%	15.06%	20.64%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.87%**	**25.61%**	**31.19%**	**19.04%**	**23.77%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**28.36%**	**26.10%**	**31.68%**	**19.46%**	**24.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of McMinnville

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$37,630,252	$33,421,156
Allocated pre-SLGRP pooled liability/(surplus)	(2,640,693)	(2,868,614)
Transition liability/(surplus)	0	4,959,923
Allocated pooled OPSRP UAL	3,005,050	2,480,842
Side account	0	0
Net unfunded pension actuarial accrued liability	37,994,609	37,993,307
Combined valuation payroll	17,454,759	17,450,574
Net pension UAL as a percentage of payroll	218%	218%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.00%	2.99%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,377)	$84,734
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$2,434,791	$425,601	17.55%	$2,635,598	$462,547
Tier 2 General Service	12.54%	2,337,103	293,073	12.26%	2,464,784	302,183
Total General Service		**4,771,894**	**718,674**		**5,100,382**	**764,730**
Tier 1 Police & Fire	22.14%	1,225,467	271,318	21.37%	1,272,574	271,949
Tier 2 Police & Fire	19.73%	2,024,415	399,417	18.95%	2,038,054	386,211
Total Police & Fire		**3,249,882**	**670,735**		**3,310,628**	**658,160**
Total		**$8,021,776**	**$1,389,409**		**$8,411,010**	**$1,422,890**
Employer normal cost rate						
General Service			**15.06%**			**14.99%**
Police & Fire			**20.64%**			**19.88%**
Aggregate (Default)			**17.32%**			**16.92%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$4,959,923
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	2.94%
B. Actual employer payroll	8,585,114
C. Payment to transition liability/(surplus)	252,402
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	2.94%
B. Actual employer payroll	8,818,390
C. Payment to transition liability/(surplus)	173,335
4. Supplemental payment to transition liability	4,816,965
5. Interest	282,779
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	4,959,923
2. Combined valuation payroll	17,454,759	17,450,574
3. Regular amortization factor	0.000	9.504
4. **Total transition liability/(surplus) rate**	**0.00%**	**2.99%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	17,454,759	17,450,574
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Medford/2102
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Medford/2102

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Medford -- #2102

November 2017

Secondary Employers

2134 Medford Water Commission

CONTENTS

Executive Summary

Milliman has prepared this report for City of Medford to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Medford.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Medford

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.00%	14.48%	20.83%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(6.84%)	(6.84%)	(6.84%)	(6.84%)	(6.84%)
Net pension contribution rate	**23.39%**	**19.87%**	**26.22%**	**13.88%**	**18.61%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.88%**	**20.36%**	**26.71%**	**14.30%**	**19.03%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Medford

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$81,126,722	$71,335,051
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	6,478,559	5,295,180
Side account	23,150,344	24,099,918
Net unfunded pension actuarial accrued liability	64,454,937	52,530,313
Combined valuation payroll	37,630,558	37,246,994
Net pension UAL as a percentage of payroll	171%	141%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	0.00%	0.00%
Side account rate relief	(6.84%)	(6.81%)
Allocated pooled RHIA UAL	($5,124)	$180,859
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$3,340,247	$583,875	17.55%	$4,643,346	$814,907
Tier 2 General Service	12.54%	5,181,535	649,764	12.26%	5,350,568	655,980
Total General Service		**8,521,782**	**1,233,639**		**9,993,914**	**1,470,887**
Tier 1 Police & Fire	22.14%	4,826,976	1,068,692	21.37%	5,018,002	1,072,347
Tier 2 Police & Fire	19.73%	5,775,790	1,139,563	18.95%	5,839,771	1,106,637
Total Police & Fire		**10,602,766**	**2,208,255**		**10,857,773**	**2,178,984**
Total		**$19,124,548**	**$3,441,894**		**$20,851,687**	**$3,649,871**
Employer normal cost rate						
General Service			**14.48%**			**14.72%**
Police & Fire			**20.83%**			**20.07%**
Aggregate (Default)			**18.00%**			**17.50%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	37,630,558	37,246,994
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$24,099,918**	**$24,099,918**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(2,599,786)	(2,599,786)
5. Side account earnings during 2016		1,651,212	1,651,212
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$23,150,344**	**$23,150,344**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$23,150,344	$24,099,918
Side Account 2	0	0
Side Account 3	0	0
Total	**$23,150,344**	**$24,099,918**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$23,150,344	$24,099,918
2. Combined valuation payroll	37,630,558	37,246,994
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(6.84%)	(6.81%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Mill City/2207
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Mill City/2207

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Mill City -- #2207

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Mill City to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Mill City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Mill City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.18%	0.18%	0.18%	0.18%	0.18%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.27%**	**23.27%**	**31.39%**	**19.22%**	**23.95%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.76%**	**23.76%**	**31.88%**	**19.64%**	**24.37%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Mill City

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$510,304	$455,298
Allocated pre-SLGRP pooled liability/(surplus)	(35,810)	(39,079)
Transition liability/(surplus)	3,922	4,031
Allocated pooled OPSRP UAL	40,751	33,797
Side account	0	0
Net unfunded pension actuarial accrued liability	519,167	454,047
Combined valuation payroll	236,704	237,730
Net pension UAL as a percentage of payroll	219%	191%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.18%	0.18%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($32)	$1,154
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	64,886	8,137	12.26%	58,527	7,175
Total General Service		**64,886**	**8,137**		**58,527**	**7,175**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$64,886**	**$8,137**		**$58,527**	**$7,175**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$4,031
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.17%
B. Actual employer payroll	118,323
C. Payment to transition liability/(surplus)	201
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.17%
B. Actual employer payroll	107,219
C. Payment to transition liability/(surplus)	182
4. Supplemental payment to transition liability	0
5. Interest	274
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$3,922**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	3,922	4,031
2. Combined valuation payroll	236,704	237,730
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**0.18%**	**0.18%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	236,704	237,730
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Millersburg/2286
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Millersburg/2286

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Millersburg -- #2286

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Millersburg to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Millersburg.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Millersburg

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.31%)	(2.31%)	(2.31%)	(2.31%)	(2.31%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.46%**	**22.46%**	**30.58%**	**18.41%**	**23.14%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**22.95%**	**22.95%**	**31.07%**	**18.83%**	**23.56%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Millersburg

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$338,119	$429,131
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(32,554)	(33,208)
Allocated pooled OPSRP UAL	27,001	31,854
Side account	0	0
Net unfunded pension actuarial accrued liability	332,566	427,777
Combined valuation payroll	156,836	224,067
Net pension UAL as a percentage of payroll	212%	191%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.31%)	(1.56%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($21)	$1,088
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$73,784	$12,949
Tier 2 General Service	12.54%	59,026	7,402	12.26%	57,273	7,022
Total General Service		**59,026**	**7,402**		**131,057**	**19,971**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$59,026**	**$7,402**		**$131,057**	**$19,971**
Employer normal cost rate						
General Service			**12.54%**			**15.24%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**15.24%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($33,208)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.53%)
B. Actual employer payroll	116,032
C. Payment to transition liability/(surplus)	(1,775)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.53%)
B. Actual employer payroll	75,160
C. Payment to transition liability/(surplus)	(1,150)
4. Supplemental payment to transition liability	0
5. Interest	(2,271)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($32,554)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(32,554)	(33,208)
2. Combined valuation payroll	156,836	224,067
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.31%)**	**(1.56%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	156,836	224,067
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Milton-Freewater/2158
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Milton-Freewater/2158

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Milton-Freewater -- #2158

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Milton-Freewater to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Milton-Freewater.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Milton-Freewater

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.19%	15.44%	20.57%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	1.57%	1.57%	1.57%	1.57%	1.57%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.31%**	**27.56%**	**32.69%**	**20.61%**	**25.34%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**28.80%**	**28.05%**	**33.18%**	**21.03%**	**25.76%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Milton-Freewater

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$9,110,534	$8,044,501
Allocated pre-SLGRP pooled liability/(surplus)	(639,329)	(690,478)
Transition liability/(surplus)	598,485	624,003
Allocated pooled OPSRP UAL	727,542	597,141
Side account	0	0
Net unfunded pension actuarial accrued liability	9,797,232	8,575,167
Combined valuation payroll	4,225,913	4,200,368
Net pension UAL as a percentage of payroll	232%	204%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	1.57%	1.56%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($575)	$20,396
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$1,146,230	$200,361	17.55%	$1,199,078	$210,438
Tier 2 General Service	12.54%	806,893	101,184	12.26%	713,455	87,470
Total General Service		**1,953,123**	**301,545**		**1,912,533**	**297,908**
Tier 1 Police & Fire	22.14%	117,243	25,958	21.37%	112,050	23,945
Tier 2 Police & Fire	19.73%	220,349	43,475	18.95%	219,907	41,672
Total Police & Fire		**337,592**	**69,433**		**331,957**	**65,617**
Total		**$2,290,715**	**$370,978**		**$2,244,490**	**$363,525**
Employer normal cost rate						
General Service			**15.44%**			**15.58%**
Police & Fire			**20.57%**			**19.77%**
Aggregate (Default)			**16.19%**			**16.20%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$624,003
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	1.60%
B. Actual employer payroll	2,055,901
C. Payment to transition liability/(surplus)	32,894
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	1.60%
B. Actual employer payroll	2,148,637
C. Payment to transition liability/(surplus)	34,379
4. Supplemental payment to transition liability	0
5. Interest	41,755
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$598,485**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	598,485	624,003
2. Combined valuation payroll	4,225,913	4,200,368
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**1.57%**	**1.56%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	4,225,913	4,200,368
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Milwaukie/2163
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Milwaukie/2163

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Milwaukie -- #2163

November 2017

Secondary Employers

2560 Wichita Water District

CONTENTS

Executive Summary

Milliman has prepared this report for City of Milwaukie to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Milwaukie.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Milwaukie

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.86%	14.49%	21.14%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.75%)	(0.75%)	(0.75%)	(0.75%)	(0.75%)
Side account rate relief [2]	(3.34%)	(3.34%)	(3.34%)	(3.34%)	(3.34%)
Net pension contribution rate	**24.32%**	**20.95%**	**27.60%**	**14.95%**	**19.68%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.81%**	**21.44%**	**28.09%**	**15.37%**	**20.10%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Milwaukie

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$21,809,480	$18,322,112
Allocated pre-SLGRP pooled liability/(surplus)	(1,530,474)	(1,572,629)
Transition liability/(surplus)	(686,501)	(723,067)
Allocated pooled OPSRP UAL	1,741,646	1,360,045
Side account	3,034,927	3,186,510
Net unfunded pension actuarial accrued liability	18,299,224	14,199,951
Combined valuation payroll	10,116,308	9,566,736
Net pension UAL as a percentage of payroll	181%	148%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.75%)	(0.80%)
Side account rate relief	(3.34%)	(3.50%)
Allocated pooled RHIA UAL	($1,377)	$46,453
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$789,391	$137,986	17.55%	$1,011,347	$177,491
Tier 2 General Service	12.54%	1,212,420	152,037	12.26%	1,214,242	148,866
Total General Service		**2,001,811**	**290,023**		**2,225,589**	**326,357**
Tier 1 Police & Fire	22.14%	1,206,651	267,153	21.37%	1,135,361	242,627
Tier 2 Police & Fire	19.73%	856,488	168,985	18.95%	927,257	175,715
Total Police & Fire		**2,063,139**	**436,138**		**2,062,618**	**418,342**
Total		**$4,064,950**	**$726,161**		**$4,288,207**	**$744,699**
Employer normal cost rate						
General Service			**14.49%**			**14.66%**
Police & Fire			**21.14%**			**20.28%**
Aggregate (Default)			**17.86%**			**17.37%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($723,067)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.87%)
B. Actual employer payroll	4,683,779
C. Payment to transition liability/(surplus)	(40,749)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.87%)
B. Actual employer payroll	5,024,378
C. Payment to transition liability/(surplus)	(43,712)
4. Supplemental payment to transition liability	0
5. Interest	(47,895)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($686,501)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(686,501)	(723,067)
2. Combined valuation payroll	10,116,308	9,566,736
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.75%)**	**(0.80%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$3,186,510**	**$3,186,510**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(368,052)	(368,052)
5. Side account earnings during 2016		217,468	217,468
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$3,034,927**	**$3,034,927**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$3,034,927	$3,186,510
Side Account 2	0	0
Side Account 3	0	0
Total	**$3,034,927**	**$3,186,510**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$3,034,927	$3,186,510
2. Combined valuation payroll	10,116,308	9,566,736
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(3.34%)	(3.50%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Monmouth/2157
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Monmouth/2157

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Monmouth/2157

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Monmouth -- #2157

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Monmouth to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Monmouth.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Monmouth

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.62%	15.51%	21.45%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(4.78%)	(4.78%)	(4.78%)	(4.78%)	(4.78%)
Net pension contribution rate	**24.07%**	**22.96%**	**28.90%**	**15.94%**	**20.67%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.56%**	**23.45%**	**29.39%**	**16.36%**	**21.09%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Monmouth

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$7,417,194	$6,288,617
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	592,317	466,802
Side account	1,477,962	1,540,700
Net unfunded pension actuarial accrued liability	6,531,549	5,214,719
Combined valuation payroll	3,440,459	3,283,548
Net pension UAL as a percentage of payroll	190%	159%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	0.00%	0.00%
Side account rate relief	(4.78%)	(4.94%)
Allocated pooled RHIA UAL	($468)	$15,944
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) **RHIPA**	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$707,544	$123,679	17.55%	$728,460	$127,845
Tier 2 General Service	12.54%	468,631	58,766	12.26%	542,671	66,531
Total General Service		**1,176,175**	**182,445**		**1,271,131**	**194,376**
Tier 1 Police & Fire	22.14%	192,956	42,720	21.37%	191,218	40,863
Tier 2 Police & Fire	19.73%	78,114	15,412	18.95%	75,247	14,259
Total Police & Fire		**271,070**	**58,132**		**266,465**	**55,122**
Total		**$1,447,245**	**$240,577**		**$1,537,596**	**$249,498**
Employer normal cost rate						
General Service			**15.51%**			**15.29%**
Police & Fire			**21.45%**			**20.69%**
Aggregate (Default)			**16.62%**			**16.23%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	3,440,459	3,283,548
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$1,540,700**	**$1,540,700**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(167,021)	(167,021)
5. Side account earnings during 2016		105,283	105,283
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$1,477,962**	**$1,477,962**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$1,477,962	$1,540,700
Side Account 2	0	0
Side Account 3	0	0
Total	**$1,477,962**	**$1,540,700**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$1,477,962	$1,540,700
2. Combined valuation payroll	3,440,459	3,283,548
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(4.78%)	(4.94%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Monroe/2209
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Monroe/2209

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Monroe -- #2209

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Monroe to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Monroe.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Monroe

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(18.77%)	(18.77%)	(18.77%)	(18.77%)	(18.77%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**9.42%**	**8.30%**	**14.12%**	**1.95%**	**6.68%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**9.91%**	**8.79%**	**14.61%**	**2.37%**	**7.10%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Monroe

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$213,774	$195,185
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(167,361)	(167,275)
Allocated pooled OPSRP UAL	17,071	14,488
Side account	0	0
Net unfunded pension actuarial accrued liability	63,484	42,398
Combined valuation payroll	99,159	101,914
Net pension UAL as a percentage of payroll	64%	42%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(18.77%)	(17.27%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($14)	$495
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($167,275)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(18.77%)
B. Actual employer payroll	45,215
C. Payment to transition liability/(surplus)	(5,625)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(18.77%)
B. Actual employer payroll	47,955
C. Payment to transition liability/(surplus)	(5,965)
4. Supplemental payment to transition liability	0
5. Interest	(11,676)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($167,361)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(167,361)	(167,275)
2. Combined valuation payroll	99,159	101,914
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(18.77%)**	**(17.27%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	99,159	101,914
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Moro/2301
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Moro/2301

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Moro -- #2301

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Moro to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Moro.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Moro

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(11.36%)	(11.36%)	(11.36%)	(11.36%)	(11.36%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**16.83%**	**15.71%**	**21.53%**	**9.36%**	**14.09%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**17.32%**	**16.20%**	**22.02%**	**9.78%**	**14.51%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Moro

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$178,015	$184,772
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(84,358)	(85,970)
Allocated pooled OPSRP UAL	14,216	13,716
Side account	0	0
Net unfunded pension actuarial accrued liability	107,873	112,518
Combined valuation payroll	82,572	96,477
Net pension UAL as a percentage of payroll	131%	117%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(11.36%)	(9.38%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($11)	$468
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$41,502	$7,284
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**41,502**	**7,284**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$41,502**	**$7,284**
Employer normal cost rate						
General Service			**14.84%**			**17.55%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**17.55%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($85,970)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(9.33%)
B. Actual employer payroll	45,372
C. Payment to transition liability/(surplus)	(4,233)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(9.33%)
B. Actual employer payroll	34,985
C. Payment to transition liability/(surplus)	(3,264)
4. Supplemental payment to transition liability	0
5. Interest	(5,885)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($84,358)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(84,358)	(85,970)
2. Combined valuation payroll	82,572	96,477
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(11.36%)**	**(9.38%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	82,572	96,477
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Mt. Vernon/2302
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Mt. Vernon/2302

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA	Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary	Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Mt Vernon -- #2302

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Mt. Vernon to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Mt. Vernon.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Mt. Vernon

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.48%	17.48%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.72%)	(6.72%)	(6.72%)	(6.72%)	(6.72%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.99%**	**22.99%**	**26.17%**	**14.00%**	**18.73%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.48%**	**23.48%**	**26.66%**	**14.42%**	**19.15%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Mt. Vernon

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$328,810	$282,814
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(92,195)	(96,762)
Allocated pooled OPSRP UAL	26,258	20,993
Side account	0	0
Net unfunded pension actuarial accrued liability	262,873	207,045
Combined valuation payroll	152,518	147,669
Net pension UAL as a percentage of payroll	172%	140%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.72%)	(6.89%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($21)	$717
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$68,325	$11,943	17.55%	$67,296	$11,810
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**68,325**	**11,943**		**67,296**	**11,810**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$68,325**	**$11,943**		**$67,296**	**$11,810**
Employer normal cost rate						
General Service			**17.48%**			**17.55%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**17.48%**			**17.55%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($96,762)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(7.53%)
B. Actual employer payroll	70,656
C. Payment to transition liability/(surplus)	(5,320)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(7.53%)
B. Actual employer payroll	75,411
C. Payment to transition liability/(surplus)	(5,679)
4. Supplemental payment to transition liability	0
5. Interest	(6,432)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($92,195)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(92,195)	(96,762)
2. Combined valuation payroll	152,518	147,669
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(6.72%)**	**(6.89%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	152,518	147,669
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Myrtle Creek/2197
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Myrtle Creek/2197

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Myrtle Creek/2197

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Myrtle Creek -- #2197

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Myrtle Creek to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Myrtle Creek.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Myrtle Creek

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.74%	14.49%	20.80%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(4.90%)	(4.90%)	(4.90%)	(4.90%)	(4.90%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**20.39%**	**20.14%**	**26.45%**	**14.14%**	**18.87%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**20.88%**	**20.63%**	**26.94%**	**14.56%**	**19.29%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Myrtle Creek

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,888,884	$1,928,002
Allocated pre-SLGRP pooled liability/(surplus)	(132,552)	(165,485)
Transition liability/(surplus)	(386,023)	(397,328)
Allocated pooled OPSRP UAL	150,841	143,115
Side account	0	0
Net unfunded pension actuarial accrued liability	1,521,150	1,508,304
Combined valuation payroll	876,157	1,006,690
Net pension UAL as a percentage of payroll	174%	150%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(4.90%)	(4.15%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($119)	$4,888
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$107,198	$18,738	17.55%	$152,439	$26,753
Tier 2 General Service	12.54%	164,266	20,599	12.26%	158,630	19,448
Total General Service		**271,464**	**39,337**		**311,069**	**46,201**
Tier 1 Police & Fire	22.14%	4,968	1,100	21.37%	56,642	12,104
Tier 2 Police & Fire	19.73%	6,225	1,228	18.95%	0	0
Total Police & Fire		**11,193**	**2,328**		**56,642**	**12,104**
Total		**$282,657**	**$41,665**		**$367,711**	**$58,305**
Employer normal cost rate						
General Service			**14.49%**			**14.85%**
Police & Fire			**20.80%**			**21.37%**
Aggregate (Default)			**14.74%**			**15.86%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($397,328)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.00%)
B. Actual employer payroll	473,137
C. Payment to transition liability/(surplus)	(18,925)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.00%)
B. Actual employer payroll	482,783
C. Payment to transition liability/(surplus)	(19,312)
4. Supplemental payment to transition liability	0
5. Interest	(26,932)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($386,023)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(386,023)	(397,328)
2. Combined valuation payroll	876,157	1,006,690
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(4.90%)**	**(4.15%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	876,157	1,006,690
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Myrtle Point/2183
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Myrtle Point/2183

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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November 2017
City of Myrtle Point/2183

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Myrtle Point -- #2183

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Myrtle Point to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Myrtle Point.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Myrtle Point

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.82%	14.94%	20.92%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(7.45%)	(7.45%)	(7.45%)	(7.45%)	(7.45%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**19.92%**	**18.04%**	**24.02%**	**11.59%**	**16.32%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**20.41%**	**18.53%**	**24.51%**	**12.01%**	**16.74%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Myrtle Point

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$2,613,115	$2,469,825
Allocated pre-SLGRP pooled liability/(surplus)	(183,375)	(211,991)
Transition liability/(surplus)	(811,903)	(837,404)
Allocated pooled OPSRP UAL	208,676	183,334
Side account	0	0
Net unfunded pension actuarial accrued liability	1,826,513	1,603,764
Combined valuation payroll	1,212,091	1,289,598
Net pension UAL as a percentage of payroll	151%	124%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(7.45%)	(6.83%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($165)	$6,262
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$173,278	$30,289	17.55%	$217,064	$38,095
Tier 2 General Service	12.54%	182,718	22,913	12.26%	175,950	21,571
Total General Service		**355,996**	**53,202**		**393,014**	**59,666**
Tier 1 Police & Fire	22.14%	80,583	17,841	21.37%	72,742	15,545
Tier 2 Police & Fire	19.73%	81,999	16,178	18.95%	160,543	30,423
Total Police & Fire		**162,582**	**34,019**		**233,285**	**45,968**
Total		**$518,578**	**$87,221**		**$626,299**	**$105,634**
Employer normal cost rate						
General Service			**14.94%**			**15.18%**
Police & Fire			**20.92%**			**19.70%**
Aggregate (Default)			**16.82%**			**16.87%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($837,404)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(6.98%)
B. Actual employer payroll	621,535
C. Payment to transition liability/(surplus)	(43,383)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(6.98%)
B. Actual employer payroll	555,322
C. Payment to transition liability/(surplus)	(38,762)
4. Supplemental payment to transition liability	0
5. Interest	(56,644)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($811,903)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(811,903)	(837,404)
2. Combined valuation payroll	1,212,091	1,289,598
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(7.45%)**	**(6.83%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,212,091	1,289,598
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Newberg/2777
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Newberg/2777

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Newberg -- #2777

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Newberg to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Newberg.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Newberg

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.11%	14.37%	20.70%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.92%)	(0.92%)	(0.92%)	(0.92%)	(0.92%)
Side account rate relief [2]	(5.18%)	(5.18%)	(5.18%)	(5.18%)	(5.18%)
Net pension contribution rate	**22.56%**	**18.82%**	**25.15%**	**12.94%**	**17.67%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.05%**	**19.31%**	**25.64%**	**13.36%**	**18.09%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Newberg

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$9,767,543	$12,736,789
Allocated pre-SLGRP pooled liability/(surplus)	(685,435)	(1,093,228)
Transition liability/(surplus)	(375,917)	(382,525)
Allocated pooled OPSRP UAL	780,009	945,448
Side account	2,112,022	2,142,104
Net unfunded pension actuarial accrued liability	7,374,178	10,064,380
Combined valuation payroll	4,530,666	6,650,407
Net pension UAL as a percentage of payroll	163%	151%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.92%)	(0.61%)
Side account rate relief	(5.18%)	(3.39%)
Allocated pooled RHIA UAL	($617)	$32,292
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$396,422	$69,295	17.55%	$315,273	$55,330
Tier 2 General Service	12.54%	672,074	84,278	12.26%	701,627	86,019
Total General Service		**1,068,496**	**153,573**		**1,016,900**	**141,349**
Tier 1 Police & Fire	22.14%	620,854	137,457	21.37%	1,063,667	227,306
Tier 2 Police & Fire	19.73%	914,365	180,404	18.95%	1,570,442	297,599
Total Police & Fire		**1,535,219**	**317,861**		**2,634,109**	**524,905**
Total		**$2,603,715**	**$471,434**		**$3,651,009**	**$666,254**
Employer normal cost rate						
General Service			**14.37%**			**13.90%**
Police & Fire			**20.70%**			**19.93%**
Aggregate (Default)			**18.11%**			**18.25%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($382,525)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.58%)
B. Actual employer payroll	3,361,925
C. Payment to transition liability/(surplus)	(19,499)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.58%)
B. Actual employer payroll	2,299,261
C. Payment to transition liability/(surplus)	(13,336)
4. Supplemental payment to transition liability	0
5. Interest	(26,227)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($375,917)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(375,917)	(382,525)
2. Combined valuation payroll	4,530,666	6,650,407
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.92%)**	**(0.61%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$2,142,104**	**$2,142,104**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(177,909)	(177,909)
5. Side account earnings during 2016		148,827	148,827
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$2,112,022**	**$2,112,022**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$2,112,022	$2,142,104
Side Account 2	0	0
Side Account 3	0	0
Total	**$2,112,022**	**$2,142,104**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$2,112,022	$2,142,104
2. Combined valuation payroll	4,530,666	6,650,407
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(5.18%)	(3.39%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Newport/2276
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Newport/2276

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Newport/2276

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Newport -- #2276

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Newport to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Newport.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Newport

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.50%	14.84%	20.50%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(5.81%)	(5.81%)	(5.81%)	(5.81%)	(5.81%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.24%**	**19.58%**	**25.24%**	**13.23%**	**17.96%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.73%**	**20.07%**	**25.73%**	**13.65%**	**18.38%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Newport

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$5,241,970	$4,068,822
Allocated pre-SLGRP pooled liability/(surplus)	(367,854)	(349,236)
Transition liability/(surplus)	(1,270,391)	(1,320,312)
Allocated pooled OPSRP UAL	418,609	302,027
Side account	0	0
Net unfunded pension actuarial accrued liability	4,022,334	2,701,301
Combined valuation payroll	2,431,483	2,124,501
Net pension UAL as a percentage of payroll	165%	127%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(5.81%)	(6.54%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($331)	$10,316
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	361,645	80,068	21.37%	404,138	86,364
Tier 2 Police & Fire	19.73%	775,957	153,096	18.95%	620,085	117,506
Total Police & Fire		**1,137,602**	**233,164**		**1,024,223**	**203,870**
Total		**$1,137,602**	**$233,164**		**$1,024,223**	**$203,870**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.50%**			**19.90%**
Aggregate (Default)			**20.50%**			**19.90%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,320,312)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(6.09%)
B. Actual employer payroll	1,093,264
C. Payment to transition liability/(surplus)	(66,580)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(6.09%)
B. Actual employer payroll	1,181,825
C. Payment to transition liability/(surplus)	(71,973)
4. Supplemental payment to transition liability	0
5. Interest	(88,632)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,270,391)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,270,391)	(1,320,312)
2. Combined valuation payroll	2,431,483	2,124,501
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.81%)**	**(6.54%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,431,483	2,124,501
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of North Bend/2292
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of North Bend/2292

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of North Bend/2292

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of North Bend -- #2292

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of North Bend to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of North Bend.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of North Bend

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.03%	14.89%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.72%)	(2.72%)	(2.72%)	(2.72%)	(2.72%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.86%**	**22.72%**	**28.49%**	**16.32%**	**21.05%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.35%**	**23.21%**	**28.98%**	**16.74%**	**21.47%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of North Bend

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$8,306,811	$6,870,196
Allocated pre-SLGRP pooled liability/(surplus)	(582,928)	(589,685)
Transition liability/(surplus)	(941,131)	(976,471)
Allocated pooled OPSRP UAL	663,359	509,973
Side account	0	0
Net unfunded pension actuarial accrued liability	7,446,111	5,814,013
Combined valuation payroll	3,853,107	3,587,215
Net pension UAL as a percentage of payroll	193%	162%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(2.72%)	(2.86%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($525)	$17,418
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$368,456	$64,406	17.55%	$421,345	$73,946
Tier 2 General Service	12.54%	405,932	50,904	12.26%	443,230	54,340
Total General Service		**774,388**	**115,310**		**864,575**	**128,286**
Tier 1 Police & Fire	22.14%	355,142	78,628	21.37%	315,950	67,519
Tier 2 Police & Fire	19.73%	567,718	112,011	18.95%	570,675	108,143
Total Police & Fire		**922,860**	**190,639**		**886,625**	**175,662**
Total		**$1,697,248**	**$305,949**		**$1,751,200**	**$303,948**
Employer normal cost rate						
General Service			**14.89%**			**14.84%**
Police & Fire			**20.66%**			**19.81%**
Aggregate (Default)			**18.03%**			**17.36%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($976,471)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(2.72%)
B. Actual employer payroll	1,808,719
C. Payment to transition liability/(surplus)	(49,197)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(2.72%)
B. Actual employer payroll	1,904,538
C. Payment to transition liability/(surplus)	(51,803)
4. Supplemental payment to transition liability	0
5. Interest	(65,660)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($941,131)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(941,131)	(976,471)
2. Combined valuation payroll	3,853,107	3,587,215
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.72%)**	**(2.86%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	3,853,107	3,587,215
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of North Plains/2192
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of North Plains/2192

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of North Plains -- #2192

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of North Plains to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of North Plains.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of North Plains

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.65%)	(2.65%)	(2.65%)	(2.65%)	(2.65%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**20.44%**	**20.44%**	**28.56%**	**16.39%**	**21.12%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**20.93%**	**20.93%**	**29.05%**	**16.81%**	**21.54%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of North Plains

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$1,376,954	$1,287,421
Allocated pre-SLGRP pooled liability/(surplus)	(96,627)	(110,502)
Transition liability/(surplus)	(152,009)	(155,113)
Allocated pooled OPSRP UAL	109,960	95,565
Side account	0	0
Net unfunded pension actuarial accrued liability	1,238,278	1,117,371
Combined valuation payroll	638,699	672,216
Net pension UAL as a percentage of payroll	194%	166%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(2.65%)	(2.43%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($87)	$3,264
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	149,015	18,686	12.26%	216,623	26,558
Total General Service		**149,015**	**18,686**		**216,623**	**26,558**
Tier 1 Police & Fire	22.14%	0	0	21.37%	508	109
Tier 2 Police & Fire	19.73%	0	0	18.95%	88,479	16,767
Total Police & Fire		**0**	**0**		**88,987**	**16,876**
Total		**$149,015**	**$18,686**		**$305,610**	**$43,434**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**18.96%**
Aggregate (Default)			**12.54%**			**14.21%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($155,113)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(2.10%)
B. Actual employer payroll	322,155
C. Payment to transition liability/(surplus)	(6,765)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(2.10%)
B. Actual employer payroll	330,625
C. Payment to transition liability/(surplus)	(6,944)
4. Supplemental payment to transition liability	0
5. Interest	(10,605)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($152,009)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(152,009)	(155,113)
2. Combined valuation payroll	638,699	672,216
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.65%)**	**(2.43%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	638,699	672,216
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of North Powder/2308
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of North Powder/2308

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of North Powder -- #2308

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of North Powder to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of North Powder.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of North Powder

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.27%)	(3.27%)	(3.27%)	(3.27%)	(3.27%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.50%**	**21.50%**	**29.62%**	**17.45%**	**22.18%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**21.99%**	**21.99%**	**30.11%**	**17.87%**	**22.60%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of North Powder

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$141,136	$123,262
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(19,275)	(20,035)
Allocated pooled OPSRP UAL	11,271	9,150
Side account	0	0
Net unfunded pension actuarial accrued liability	133,132	112,377
Combined valuation payroll	65,466	64,360
Net pension UAL as a percentage of payroll	203%	175%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.27%)	(3.28%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($9)	$313
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	33,621	4,216	12.26%	32,872	4,030
Total General Service		**33,621**	**4,216**		**32,872**	**4,030**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$33,621**	**$4,216**		**$32,872**	**$4,030**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($20,035)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(3.37%)
B. Actual employer payroll	29,982
C. Payment to transition liability/(surplus)	(1,010)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(3.37%)
B. Actual employer payroll	32,484
C. Payment to transition liability/(surplus)	(1,095)
4. Supplemental payment to transition liability	0
5. Interest	(1,345)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($19,275)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(19,275)	(20,035)
2. Combined valuation payroll	65,466	64,360
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(3.27%)**	**(3.28%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	65,466	64,360
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Nyssa/2166
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Nyssa/2166

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Nyssa -- #2166

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Nyssa to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Nyssa.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Nyssa

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.89%	15.60%	21.15%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.56%)	(0.56%)	(0.56%)	(0.56%)	(0.56%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.88%**	**25.59%**	**31.14%**	**18.48%**	**23.21%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**28.37%**	**26.08%**	**31.63%**	**18.90%**	**23.63%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Nyssa

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,574,525	$1,496,355
Allocated pre-SLGRP pooled liability/(surplus)	(110,492)	(128,436)
Transition liability/(surplus)	(36,507)	(37,365)
Allocated pooled OPSRP UAL	125,737	111,074
Side account	0	0
Net unfunded pension actuarial accrued liability	1,553,263	1,441,628
Combined valuation payroll	730,342	781,309
Net pension UAL as a percentage of payroll	213%	185%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.56%)	(0.50%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($99)	$3,794
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$120,458	$21,056	17.55%	$117,707	$20,658
Tier 2 General Service	12.54%	74,149	9,298	12.26%	84,107	10,312
Total General Service		**194,607**	**30,354**		**201,814**	**30,970**
Tier 1 Police & Fire	22.14%	80,564	17,837	21.37%	125,469	26,813
Tier 2 Police & Fire	19.73%	55,736	10,997	18.95%	56,792	10,762
Total Police & Fire		**136,300**	**28,834**		**182,261**	**37,575**
Total		**$330,907**	**$59,188**		**$384,075**	**$68,545**
Employer normal cost rate						
General Service			**15.60%**			**15.35%**
Police & Fire			**21.15%**			**20.62%**
Aggregate (Default)			**17.89%**			**17.85%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($37,365)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.50%)
B. Actual employer payroll	336,065
C. Payment to transition liability/(surplus)	(1,680)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.50%)
B. Actual employer payroll	344,972
C. Payment to transition liability/(surplus)	(1,725)
4. Supplemental payment to transition liability	0
5. Interest	(2,547)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($36,507)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(36,507)	(37,365)
2. Combined valuation payroll	730,342	781,309
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.56%)**	**(0.50%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	730,342	781,309
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Oakland/2143
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Oakland/2143

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Oakland -- #2143

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Oakland to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Oakland.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Oakland

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	7.20%	7.20%	7.20%	7.20%	7.20%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**31.97%**	**31.97%**	**40.09%**	**27.92%**	**32.65%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**32.46%**	**32.46%**	**40.58%**	**28.34%**	**33.07%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Oakland

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$366,483	$384,587
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	110,111	116,541
Allocated pooled OPSRP UAL	29,266	28,548
Side account	0	0
Net unfunded pension actuarial accrued liability	505,860	529,676
Combined valuation payroll	169,993	200,809
Net pension UAL as a percentage of payroll	298%	264%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	7.20%	6.11%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($23)	$975
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	44,392	5,567	12.26%	43,582	5,343
Total General Service		**44,392**	**5,567**		**43,582**	**5,343**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$44,392**	**$5,567**		**$43,582**	**$5,343**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$116,541
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	7.09%
B. Actual employer payroll	96,189
C. Payment to transition liability/(surplus)	6,820
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	7.09%
B. Actual employer payroll	102,853
C. Payment to transition liability/(surplus)	7,292
4. Supplemental payment to transition liability	0
5. Interest	7,682
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$110,111**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	110,111	116,541
2. Combined valuation payroll	169,993	200,809
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**7.20%**	**6.11%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	169,993	200,809
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Oakridge/2168
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Oakridge/2168

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Oakridge/2168

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Oakridge -- #2168

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Oakridge to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Oakridge.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Oakridge

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.94%	14.15%	21.46%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	4.77%	4.77%	4.77%	4.77%	4.77%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**34.26%**	**29.47%**	**36.78%**	**23.81%**	**28.54%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**34.75%**	**29.96%**	**37.27%**	**24.23%**	**28.96%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Oakridge

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$2,842,756	$2,182,381
Allocated pre-SLGRP pooled liability/(surplus)	(199,490)	(187,319)
Transition liability/(surplus)	565,594	595,642
Allocated pooled OPSRP UAL	227,015	161,998
Side account	0	0
Net unfunded pension actuarial accrued liability	3,435,875	2,752,702
Combined valuation payroll	1,318,610	1,139,512
Net pension UAL as a percentage of payroll	261%	242%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	4.77%	5.50%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($180)	$5,533
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$46,725	$8,168	17.55%	$58,425	$10,254
Tier 2 General Service	12.54%	96,686	12,124	12.26%	106,780	13,091
Total General Service		**143,411**	**20,292**		**165,205**	**23,345**
Tier 1 Police & Fire	22.14%	195,884	43,369	21.37%	178,964	38,245
Tier 2 Police & Fire	19.73%	76,201	15,034	18.95%	65,400	12,393
Total Police & Fire		**272,085**	**58,403**		**244,364**	**50,638**
Total		**$415,496**	**$78,695**		**$409,569**	**$73,983**
Employer normal cost rate						
General Service			**14.15%**			**14.13%**
Police & Fire			**21.46%**			**20.72%**
Aggregate (Default)			**18.94%**			**18.06%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$595,642
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	5.77%
B. Actual employer payroll	588,798
C. Payment to transition liability/(surplus)	33,974
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	5.77%
B. Actual employer payroll	615,849
C. Payment to transition liability/(surplus)	35,534
4. Supplemental payment to transition liability	0
5. Interest	39,460
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$565,594**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	565,594	595,642
2. Combined valuation payroll	1,318,610	1,139,512
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**4.77%**	**5.50%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,318,610	1,139,512
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Oregon City/2119
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Oregon City/2119

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Oregon City/2119

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Oregon City -- #2119

November 2017

Secondary Employers

2727	Park Place Water District
2769	South Fork Water Board

CONTENTS

Executive Summary

Milliman has prepared this report for City of Oregon City to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Oregon City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Oregon City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.79%	13.94%	20.13%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(4.98%)	(4.98%)	(4.98%)	(4.98%)	(4.98%)
Net pension contribution rate	**23.04%**	**21.19%**	**27.38%**	**15.74%**	**20.47%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.53%**	**21.68%**	**27.87%**	**16.16%**	**20.89%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Oregon City

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$28,165,584	$24,291,097
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	2,249,227	1,803,121
Side account	5,846,594	6,123,589
Net unfunded pension actuarial accrued liability	24,568,217	19,970,629
Combined valuation payroll	13,064,581	12,683,391
Net pension UAL as a percentage of payroll	188%	157%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	0.00%	0.00%
Side account rate relief	(4.98%)	(5.08%)
Allocated pooled RHIA UAL	($1,779)	$61,586
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$1,274,774	$222,830	17.55%	$1,322,854	$232,161
Tier 2 General Service	12.54%	3,228,386	404,840	12.26%	3,371,881	413,393
Total General Service		**4,503,160**	**627,670**		**4,694,735**	**645,554**
Tier 1 Police & Fire	22.14%	319,515	70,741	21.37%	411,431	87,923
Tier 2 Police & Fire	19.73%	1,593,261	314,350	18.95%	1,611,706	305,418
Total Police & Fire		**1,912,776**	**385,091**		**2,023,137**	**393,341**
Total		**$6,415,936**	**$1,012,761**		**$6,717,872**	**$1,038,895**
Employer normal cost rate						
General Service			**13.94%**			**13.75%**
Police & Fire			**20.13%**			**19.44%**
Aggregate (Default)			**15.79%**			**15.46%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	13,064,581	12,683,391
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$6,123,589**	**$6,123,589**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(690,606)	(690,606)
5. Side account earnings during 2016		414,610	414,610
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$5,846,594**	**$5,846,594**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$5,846,594	$6,123,589
Side Account 2	0	0
Side Account 3	0	0
Total	**$5,846,594**	**$6,123,589**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$5,846,594	$6,123,589
2. Combined valuation payroll	13,064,581	12,683,391
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(4.98%)	(5.08%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Pendleton/2154
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Pendleton/2154

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Pendleton -- #2154

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Pendleton to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Pendleton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Pendleton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.13%	15.74%	20.34%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(4.13%)	(4.13%)	(4.13%)	(4.13%)	(4.13%)
Net pension contribution rate	**24.55%**	**22.16%**	**26.76%**	**14.91%**	**19.64%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.04%**	**22.65%**	**27.25%**	**15.33%**	**20.06%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Pendleton

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$18,460,956	$16,991,994
Allocated pre-SLGRP pooled liability/(surplus)	(1,295,493)	(1,458,462)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	1,474,242	1,261,311
Side account	3,181,522	3,313,409
Net unfunded pension actuarial accrued liability	15,458,183	13,481,434
Combined valuation payroll	8,563,098	8,872,226
Net pension UAL as a percentage of payroll	181%	152%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.00%	0.00%
Side account rate relief	(4.13%)	(3.93%)
Allocated pooled RHIA UAL	($1,166)	$43,080
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$1,196,820	$209,204	17.55%	$1,159,214	$203,442
Tier 2 General Service	12.54%	652,033	81,765	12.26%	892,656	109,440
Total General Service		**1,848,853**	**290,969**		**2,051,870**	**312,882**
Tier 1 Police & Fire	22.14%	509,947	112,902	21.37%	866,503	185,172
Tier 2 Police & Fire	19.73%	1,496,086	295,178	18.95%	1,615,886	306,210
Total Police & Fire		**2,006,033**	**408,080**		**2,482,389**	**491,382**
Total		**$3,854,886**	**$699,049**		**$4,534,259**	**$804,264**
Employer normal cost rate						
General Service			**15.74%**			**15.25%**
Police & Fire			**20.34%**			**19.79%**
Aggregate (Default)			**18.13%**			**17.74%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	8,563,098	8,872,226
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$3,313,409**	**$3,313,409**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(356,737)	(356,737)
5. Side account earnings during 2016		225,850	225,850
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$3,181,522**	**$3,181,522**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$3,181,522	$3,313,409
Side Account 2	0	0
Side Account 3	0	0
Total	**$3,181,522**	**$3,313,409**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$3,181,522	$3,313,409
2. Combined valuation payroll	8,563,098	8,872,226
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(4.13%)	(3.93%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Philomath/2187
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Philomath/2187

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Philomath -- #2187

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Philomath to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Philomath.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Philomath

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.10%	15.02%	22.14%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.69%)	(2.69%)	(2.69%)	(2.69%)	(2.69%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.96%**	**22.88%**	**30.00%**	**16.35%**	**21.08%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.45%**	**23.37%**	**30.49%**	**16.77%**	**21.50%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Philomath

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$3,694,240	$2,989,888
Allocated pre-SLGRP pooled liability/(surplus)	(259,242)	(256,629)
Transition liability/(surplus)	(415,080)	(439,257)
Allocated pooled OPSRP UAL	295,012	221,939
Side account	0	0
Net unfunded pension actuarial accrued liability	3,314,930	2,515,941
Combined valuation payroll	1,713,570	1,561,145
Net pension UAL as a percentage of payroll	193%	161%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(2.69%)	(2.96%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($233)	$7,580
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$202,904	$35,468	17.55%	$199,861	$35,076
Tier 2 General Service	12.54%	200,713	25,169	12.26%	191,102	23,429
Total General Service		**403,617**	**60,637**		**390,963**	**58,505**
Tier 1 Police & Fire	22.14%	165,862	36,722	21.37%	162,361	34,697
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**165,862**	**36,722**		**162,361**	**34,697**
Total		**$569,479**	**$97,359**		**$553,324**	**$93,202**
Employer normal cost rate						
General Service			**15.02%**			**14.96%**
Police & Fire			**22.14%**			**21.37%**
Aggregate (Default)			**17.10%**			**16.84%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($439,257)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(3.35%)
B. Actual employer payroll	771,799
C. Payment to transition liability/(surplus)	(25,855)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(3.35%)
B. Actual employer payroll	814,342
C. Payment to transition liability/(surplus)	(27,281)
4. Supplemental payment to transition liability	0
5. Interest	(28,959)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($415,080)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(415,080)	(439,257)
2. Combined valuation payroll	1,713,570	1,561,145
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.69%)**	**(2.96%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,713,570	1,561,145
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Phoenix/2249
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Phoenix/2249

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Phoenix/2249

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Phoenix -- #2249

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Phoenix to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Phoenix.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Phoenix

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.00%	12.54%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(13.35%)	(13.35%)	(13.35%)	(13.35%)	(13.35%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**13.88%**	**11.42%**	**18.61%**	**7.37%**	**12.10%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**14.37%**	**11.91%**	**19.10%**	**7.79%**	**12.52%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Phoenix

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$2,029,296	$2,240,990
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,129,883)	(1,170,042)
Allocated pooled OPSRP UAL	162,054	166,348
Side account	0	0
Net unfunded pension actuarial accrued liability	1,061,467	1,237,296
Combined valuation payroll	941,287	1,170,114
Net pension UAL as a percentage of payroll	113%	106%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(13.35%)	(10.52%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($128)	$5,682
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	149,290	18,721	12.26%	199,024	24,400
Total General Service		**149,290**	**18,721**		**199,024**	**24,400**
Tier 1 Police & Fire	22.14%	0	0	21.37%	62,320	13,318
Tier 2 Police & Fire	19.73%	77,828	15,355	18.95%	72,947	13,823
Total Police & Fire		**77,828**	**15,355**		**135,267**	**27,141**
Total		**$227,118**	**$34,076**		**$334,291**	**$51,541**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**19.73%**			**20.06%**
Aggregate (Default)			**15.00%**			**15.42%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,170,042)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(11.40%)
B. Actual employer payroll	553,331
C. Payment to transition liability/(surplus)	(63,080)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(11.40%)
B. Actual employer payroll	490,421
C. Payment to transition liability/(surplus)	(55,908)
4. Supplemental payment to transition liability	0
5. Interest	(78,829)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,129,883)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	**December 31, 2015**
1. Total transition liability/(surplus)	(1,129,883)	(1,170,042)
2. Combined valuation payroll	941,287	1,170,114
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(13.35%)**	**(10.52%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	941,287	1,170,114
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Pilot Rock/2161
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Pilot Rock/2161

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee
Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau
Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Pilot Rock -- #2161

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Pilot Rock to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Pilot Rock.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Pilot Rock

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.36%	15.36%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	5.46%	5.46%	5.46%	5.46%	5.46%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**31.37%**	**31.37%**	**36.67%**	**24.50%**	**29.23%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**31.86%**	**31.86%**	**37.16%**	**24.92%**	**29.65%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Pilot Rock

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$582,392	$634,096
Allocated pre-SLGRP pooled liability/(surplus)	(40,869)	(54,426)
Transition liability/(surplus)	132,650	133,473
Allocated pooled OPSRP UAL	46,508	47,069
Side account	0	0
Net unfunded pension actuarial accrued liability	720,681	760,212
Combined valuation payroll	270,142	331,088
Net pension UAL as a percentage of payroll	267%	230%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	5.46%	4.24%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($37)	$1,608
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$59,036	$10,319	17.55%	$83,133	$14,590
Tier 2 General Service	12.54%	44,379	5,565	12.26%	43,436	5,325
Total General Service		**103,415**	**15,884**		**126,569**	**19,915**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$103,415**	**$15,884**		**$126,569**	**$19,915**
Employer normal cost rate						
General Service			**15.36%**			**15.73%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.36%**			**15.73%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$133,473
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	3.81%
B. Actual employer payroll	130,405
C. Payment to transition liability/(surplus)	4,968
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	3.81%
B. Actual employer payroll	134,098
C. Payment to transition liability/(surplus)	5,110
4. Supplemental payment to transition liability	0
5. Interest	9,255
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$132,650**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	132,650	133,473
2. Combined valuation payroll	270,142	331,088
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**5.46%**	**4.24%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	270,142	331,088
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Port Orford/2184
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Port Orford/2184

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Port Orford/2184

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Port Orford -- #2184

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Port Orford to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Port Orford.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Port Orford

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.51%	14.46%	22.14%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.92%)	(0.92%)	(0.92%)	(0.92%)	(0.92%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.14%**	**24.09%**	**31.77%**	**18.12%**	**22.85%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.63%**	**24.58%**	**32.26%**	**18.54%**	**23.27%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Port Orford

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,021,817	$977,511
Allocated pre-SLGRP pooled liability/(surplus)	(71,706)	(83,902)
Transition liability/(surplus)	(39,234)	(41,349)
Allocated pooled OPSRP UAL	81,600	72,560
Side account	0	0
Net unfunded pension actuarial accrued liability	992,477	924,820
Combined valuation payroll	473,969	510,399
Net pension UAL as a percentage of payroll	209%	181%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.92%)	(0.85%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($65)	$2,478
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$58,487	$10,224	17.55%	$55,492	$9,739
Tier 2 General Service	12.54%	91,745	11,505	12.26%	106,183	13,018
Total General Service		**150,232**	**21,729**		**161,675**	**22,757**
Tier 1 Police & Fire	22.14%	54,617	12,092	21.37%	49,511	10,581
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**54,617**	**12,092**		**49,511**	**10,581**
Total		**$204,849**	**$33,821**		**$211,186**	**$33,338**
Employer normal cost rate						
General Service			**14.46%**			**14.08%**
Police & Fire			**22.14%**			**21.37%**
Aggregate (Default)			**16.51%**			**15.79%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($41,349)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.94%)
B. Actual employer payroll	263,391
C. Payment to transition liability/(surplus)	(2,476)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.94%)
B. Actual employer payroll	252,863
C. Payment to transition liability/(surplus)	(2,376)
4. Supplemental payment to transition liability	0
5. Interest	(2,737)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($39,234)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(39,234)	(41,349)
2. Combined valuation payroll	473,969	510,399
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.92%)**	**(0.85%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	473,969	510,399
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Portland/2121
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Portland/2121

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Portland -- #2121

November 2017

Secondary Employers

2156	Portland Development Commission
2173	Portland Boxing Commission
2509	Multnomah Rural Fire Protection District #2
2520	Powell Valley Road Water District
2525	Metropolitan Planning Commission
2566	Capitol Highway Water District
2680	Gilbert Water District
2683	City of Portland Water Bureau

CONTENTS

Executive Summary

Milliman has prepared this report for City of Portland to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Portland.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Portland

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.93%	14.84%	20.10%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	11.78%	11.78%	11.78%	11.78%	11.78%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(4.32%)	(4.32%)	(4.32%)	(4.32%)	(4.32%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.27%**	**22.18%**	**27.44%**	**15.83%**	**20.56%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**22.76%**	**22.67%**	**27.93%**	**16.25%**	**20.98%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Portland

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$782,259,899	$670,620,667
Allocated pre-SLGRP pooled liability/(surplus)	(54,894,875)	(57,560,903)
Transition liability/(surplus)	(141,028,613)	(147,978,097)
Allocated pooled OPSRP UAL	62,469,147	49,779,972
Side account	0	0
Net unfunded pension actuarial accrued liability	648,805,558	514,861,639
Combined valuation payroll	362,850,562	350,158,915
Net pension UAL as a percentage of payroll	179%	147%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(4.32%)	(4.45%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($49,405)	$1,700,252
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$67,427,006	$11,786,241	17.55%	$73,619,662	$12,920,251
Tier 2 General Service	12.54%	77,136,169	9,672,876	12.26%	79,211,840	9,711,372
Total General Service		**144,563,175**	**21,459,117**		**152,831,502**	**22,631,623**
Tier 1 Police & Fire	22.14%	357,004	79,041	21.37%	350,017	74,799
Tier 2 Police & Fire	19.73%	1,984,650	391,571	18.95%	2,038,511	386,298
Total Police & Fire		**2,341,654**	**470,612**		**2,388,528**	**461,097**
Total		**$146,904,829**	**$21,929,729**		**$155,220,030**	**$23,092,720**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.10%**			**19.30%**
Aggregate (Default)			**14.93%**			**14.88%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($147,978,097)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.69%)
B. Actual employer payroll	175,126,041
C. Payment to transition liability/(surplus)	(8,213,411)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.69%)
B. Actual employer payroll	182,841,769
C. Payment to transition liability/(surplus)	(8,575,279)
4. Supplemental payment to transition liability	0
5. Interest	(9,839,206)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($141,028,613)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(141,028,613)	(147,978,097)
2. Combined valuation payroll	362,850,562	350,158,915
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(4.32%)**	**(4.45%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	362,850,562	350,158,915
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Redmond/2122
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Redmond/2122

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Redmond -- #2122

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Redmond to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Redmond.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Redmond

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.10%	14.24%	20.27%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.79%)	(4.79%)	(4.79%)	(4.79%)	(4.79%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.54%**	**21.68%**	**27.71%**	**15.93%**	**20.66%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.03%**	**22.17%**	**28.20%**	**16.35%**	**21.08%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Redmond

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$25,145,086	$19,904,781
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(5,022,340)	(5,299,818)
Allocated pooled OPSRP UAL	2,008,018	1,477,526
Side account	0	0
Net unfunded pension actuarial accrued liability	22,130,764	16,082,489
Combined valuation payroll	11,663,526	10,393,113
Net pension UAL as a percentage of payroll	190%	155%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.79%)	(5.37%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,588)	$50,465
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) **RHIPA**	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$1,104,211	$193,016	17.55%	$971,924	$170,573
Tier 2 General Service	12.54%	2,110,768	264,690	12.26%	1,797,283	220,347
Total General Service		**3,214,979**	**457,706**		**2,769,207**	**390,920**
Tier 1 Police & Fire	22.14%	320,381	70,932	21.37%	413,926	88,456
Tier 2 Police & Fire	19.73%	1,116,999	220,384	18.95%	1,062,594	201,362
Total Police & Fire		**1,437,380**	**291,316**		**1,476,520**	**289,818**
Total		**$4,652,359**	**$749,022**		**$4,245,727**	**$680,738**
Employer normal cost rate						
General Service			**14.24%**			**14.12%**
Police & Fire			**20.27%**			**19.63%**
Aggregate (Default)			**16.10%**			**16.03%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($5,299,818)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.85%)
B. Actual employer payroll	5,212,658
C. Payment to transition liability/(surplus)	(304,941)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.85%)
B. Actual employer payroll	5,520,244
C. Payment to transition liability/(surplus)	(322,933)
4. Supplemental payment to transition liability	0
5. Interest	(350,396)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($5,022,340)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(5,022,340)	(5,299,818)
2. Combined valuation payroll	11,663,526	10,393,113
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(4.79%)**	**(5.37%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	11,663,526	10,393,113
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Reedsport/2139
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Reedsport/2139

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Reedsport/2139

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Reedsport -- #2139

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Reedsport to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Reedsport.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Reedsport

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.04%	14.01%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(12.12%)	(12.12%)	(12.12%)	(12.12%)	(12.12%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**14.47%**	**12.44%**	**18.16%**	**6.92%**	**11.65%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**14.96%**	**12.93%**	**18.65%**	**7.34%**	**12.07%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Reedsport

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$3,242,723	$2,775,726
Allocated pre-SLGRP pooled liability/(surplus)	(227,557)	(238,247)
Transition liability/(surplus)	(1,639,074)	(1,686,598)
Allocated pooled OPSRP UAL	258,955	206,041
Side account	0	0
Net unfunded pension actuarial accrued liability	1,635,047	1,056,922
Combined valuation payroll	1,504,134	1,449,322
Net pension UAL as a percentage of payroll	109%	73%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(12.12%)	(12.24%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($205)	$7,037
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$103,672	$18,122	17.55%	$129,487	$22,725
Tier 2 General Service	12.54%	245,788	30,822	12.26%	293,577	35,993
Total General Service		**349,460**	**48,944**		**423,064**	**58,718**
Tier 1 Police & Fire	22.14%	0	0	21.37%	63,382	13,545
Tier 2 Police & Fire	19.73%	192,152	37,912	18.95%	161,542	30,612
Total Police & Fire		**192,152**	**37,912**		**224,924**	**44,157**
Total		**$541,612**	**$86,856**		**$647,988**	**$102,875**
Employer normal cost rate						
General Service			**14.01%**			**13.88%**
Police & Fire			**19.73%**			**19.63%**
Aggregate (Default)			**16.04%**			**15.88%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,686,598)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(11.77%)
B. Actual employer payroll	724,374
C. Payment to transition liability/(surplus)	(81,773)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(11.77%)
B. Actual employer payroll	712,298
C. Payment to transition liability/(surplus)	(80,105)
4. Supplemental payment to transition liability	0
5. Interest	(114,354)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,639,074)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,639,074)	(1,686,598)
2. Combined valuation payroll	1,504,134	1,449,322
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(12.12%)**	**(12.24%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,504,134	1,449,322
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Riddle/2260
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Riddle/2260

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Riddle -- #2260

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Riddle to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Riddle.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Riddle

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.09%	16.09%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.59%)	(3.59%)	(3.59%)	(3.59%)	(3.59%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.73%**	**24.73%**	**29.30%**	**17.13%**	**21.86%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.22%**	**25.22%**	**29.79%**	**17.55%**	**22.28%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Riddle

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$701,720	$590,355
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(105,095)	(111,060)
Allocated pooled OPSRP UAL	56,037	43,822
Side account	0	0
Net unfunded pension actuarial accrued liability	652,662	523,117
Combined valuation payroll	325,492	308,249
Net pension UAL as a percentage of payroll	201%	170%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.59%)	(3.79%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($44)	$1,497
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$121,679	$21,269	17.55%	$117,997	$20,708
Tier 2 General Service	12.54%	47,771	5,990	12.26%	44,444	5,449
Total General Service		**169,450**	**27,259**		**162,441**	**26,157**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$169,450**	**$27,259**		**$162,441**	**$26,157**
Employer normal cost rate						
General Service			**16.09%**			**16.10%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**16.09%**			**16.10%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($111,060)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.26%)
B. Actual employer payroll	153,011
C. Payment to transition liability/(surplus)	(6,518)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.26%)
B. Actual employer payroll	159,111
C. Payment to transition liability/(surplus)	(6,779)
4. Supplemental payment to transition liability	0
5. Interest	(7,332)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($105,095)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(105,095)	(111,060)
2. Combined valuation payroll	325,492	308,249
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(3.59%)**	**(3.79%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	325,492	308,249
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Rockaway Beach/2203
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Rockaway Beach/2203

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Rockaway Beach -- #2203

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Rockaway Beach to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Rockaway Beach.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Rockaway Beach

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.35%	13.49%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.21%)	(3.21%)	(3.21%)	(3.21%)	(3.21%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.37%**	**22.51%**	**28.75%**	**17.51%**	**22.24%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.86%**	**23.00%**	**29.24%**	**17.93%**	**22.66%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Rockaway Beach

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$2,176,943	$1,664,849
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(291,142)	(311,357)
Allocated pooled OPSRP UAL	173,845	123,581
Side account	0	0
Net unfunded pension actuarial accrued liability	2,059,646	1,477,073
Combined valuation payroll	1,009,773	869,287
Net pension UAL as a percentage of payroll	204%	170%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.21%)	(3.77%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($137)	$4,221
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$48,242	$8,433	17.55%	$46,257	$8,118
Tier 2 General Service	12.54%	202,084	25,341	12.26%	190,920	23,407
Total General Service		**250,326**	**33,774**		**237,177**	**31,525**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	40,012	7,894	18.95%	0	0
Total Police & Fire		**40,012**	**7,894**		**0**	**0**
Total		**$290,338**	**$41,668**		**$237,177**	**$31,525**
Employer normal cost rate						
General Service			**13.49%**			**13.29%**
Police & Fire			**19.73%**			**19.94%**
Aggregate (Default)			**14.35%**			**13.29%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($311,357)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.27%)
B. Actual employer payroll	446,139
C. Payment to transition liability/(surplus)	(19,050)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.27%)
B. Actual employer payroll	502,963
C. Payment to transition liability/(surplus)	(21,477)
4. Supplemental payment to transition liability	0
5. Interest	(20,312)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($291,142)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(291,142)	(311,357)
2. Combined valuation payroll	1,009,773	869,287
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(3.21%)**	**(3.77%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,009,773	869,287
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Rogue River/2251
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Rogue River/2251

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Rogue River -- #2251

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Rogue River to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Rogue River.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Rogue River

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.34%	15.41%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	3.88%	3.88%	3.88%	3.88%	3.88%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**30.77%**	**29.84%**	**34.16%**	**22.92%**	**27.65%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**31.26%**	**30.33%**	**34.65%**	**23.34%**	**28.07%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Rogue River

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,449,939	$1,248,788
Allocated pre-SLGRP pooled liability/(surplus)	(101,749)	(107,186)
Transition liability/(surplus)	234,462	244,973
Allocated pooled OPSRP UAL	115,788	92,697
Side account	0	0
Net unfunded pension actuarial accrued liability	1,698,440	1,479,272
Combined valuation payroll	672,553	652,044
Net pension UAL as a percentage of payroll	253%	227%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	3.88%	3.95%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($92)	$3,166
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$132,296	$23,125	17.55%	$131,395	$23,060
Tier 2 General Service	12.54%	95,311	11,952	12.26%	94,865	11,630
Total General Service		**227,607**	**35,077**		**226,260**	**34,690**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	62,102	12,253	18.95%	58,176	11,024
Total Police & Fire		**62,102**	**12,253**		**58,176**	**11,024**
Total		**$289,709**	**$47,330**		**$284,436**	**$45,714**
Employer normal cost rate						
General Service			**15.41%**			**15.33%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**16.34%**			**16.07%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$244,973
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	3.54%
B. Actual employer payroll	372,481
C. Payment to transition liability/(surplus)	13,186
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	3.54%
B. Actual employer payroll	386,527
C. Payment to transition liability/(surplus)	13,683
4. Supplemental payment to transition liability	0
5. Interest	16,358
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$234,462**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	234,462	244,973
2. Combined valuation payroll	672,553	652,044
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**3.88%**	**3.95%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	672,553	652,044
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Roseburg/2100
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Roseburg/2100

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Roseburg -- #2100

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Roseburg to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Roseburg.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Roseburg

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.19%	14.76%	20.89%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.74%**	**25.31%**	**31.44%**	**19.04%**	**23.77%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**29.23%**	**25.80%**	**31.93%**	**19.46%**	**24.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Roseburg

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$23,471,005	$20,004,928
Allocated pre-SLGRP pooled liability/(surplus)	(1,647,071)	(1,717,069)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	1,874,331	1,484,960
Side account	0	0
Net unfunded pension actuarial accrued liability	23,698,265	19,772,819
Combined valuation payroll	10,887,005	10,445,404
Net pension UAL as a percentage of payroll	218%	189%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.00%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,482)	$50,719
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$1,011,658	$176,838	17.55%	$977,596	$171,568
Tier 2 General Service	12.54%	1,237,582	155,193	12.26%	1,190,848	145,998
Total General Service		**2,249,240**	**332,031**		**2,168,444**	**317,566**
Tier 1 Police & Fire	22.14%	1,372,199	303,805	21.37%	1,604,468	342,875
Tier 2 Police & Fire	19.73%	1,483,969	292,787	18.95%	1,503,225	284,861
Total Police & Fire		**2,856,168**	**596,592**		**3,107,693**	**627,736**
Total		**$5,105,408**	**$928,623**		**$5,276,137**	**$945,302**
Employer normal cost rate						
General Service			**14.76%**			**14.64%**
Police & Fire			**20.89%**			**20.20%**
Aggregate (Default)			**18.19%**			**17.92%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	10,887,005	10,445,404
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	10,887,005	10,445,404
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Sandy/2172
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Sandy/2172

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA	Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary	Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Sandy -- #2172

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Sandy to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Sandy.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Sandy

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.77%	15.06%	20.20%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.68%)	(0.68%)	(0.68%)	(0.68%)	(0.68%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.64%**	**24.93%**	**30.07%**	**18.36%**	**23.09%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.13%**	**25.42%**	**30.56%**	**18.78%**	**23.51%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Sandy

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$9,351,530	$7,684,027
Allocated pre-SLGRP pooled liability/(surplus)	(656,241)	(659,538)
Transition liability/(surplus)	(264,370)	(281,027)
Allocated pooled OPSRP UAL	746,788	570,383
Side account	0	0
Net unfunded pension actuarial accrued liability	9,177,707	7,313,845
Combined valuation payroll	4,337,699	4,012,150
Net pension UAL as a percentage of payroll	212%	182%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.68%)	(0.74%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($591)	$19,482
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$452,634	$79,120	17.55%	$503,292	$88,328
Tier 2 General Service	12.54%	433,162	54,319	12.26%	406,538	49,842
Total General Service		**885,796**	**133,439**		**909,830**	**138,170**
Tier 1 Police & Fire	22.14%	86,037	19,049	21.37%	80,700	17,246
Tier 2 Police & Fire	19.73%	356,351	70,308	18.95%	342,699	64,941
Total Police & Fire		**442,388**	**89,357**		**423,399**	**82,187**
Total		**$1,328,184**	**$222,796**		**$1,333,229**	**$220,357**
Employer normal cost rate						
General Service			**15.06%**			**15.19%**
Police & Fire			**20.20%**			**19.41%**
Aggregate (Default)			**16.77%**			**16.53%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($281,027)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.85%)
B. Actual employer payroll	1,952,218
C. Payment to transition liability/(surplus)	(16,594)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.85%)
B. Actual employer payroll	2,177,319
C. Payment to transition liability/(surplus)	(18,507)
4. Supplemental payment to transition liability	0
5. Interest	(18,444)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($264,370)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(264,370)	(281,027)
2. Combined valuation payroll	4,337,699	4,012,150
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.68%)**	**(0.74%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	4,337,699	4,012,150
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Scappoose/2176
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Scappoose/2176

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Scappoose/2176

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Scappoose -- #2176

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Scappoose to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Scappoose.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Scappoose

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.46%	15.24%	20.39%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.30%)	(1.30%)	(1.30%)	(1.30%)	(1.30%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.39%**	**26.17%**	**31.32%**	**19.42%**	**24.15%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.88%**	**26.66%**	**31.81%**	**19.84%**	**24.57%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Scappoose

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$4,850,547	$3,926,004
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(262,558)	(279,280)
Allocated pooled OPSRP UAL	387,351	291,426
Side account	0	0
Net unfunded pension actuarial accrued liability	4,975,340	3,938,150
Combined valuation payroll	2,249,922	2,049,930
Net pension UAL as a percentage of payroll	221%	192%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.30%)	(1.43%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($306)	$9,954
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$495,757	$86,658	17.55%	$364,500	$63,970
Tier 2 General Service	12.54%	410,054	51,421	12.26%	400,415	49,091
Total General Service		**905,811**	**138,079**		**764,915**	**113,061**
Tier 1 Police & Fire	22.14%	76,882	17,022	21.37%	78,241	16,720
Tier 2 Police & Fire	19.73%	202,297	39,913	18.95%	194,189	36,799
Total Police & Fire		**279,179**	**56,935**		**272,430**	**53,519**
Total		**$1,184,990**	**$195,014**		**$1,037,345**	**$166,580**
Employer normal cost rate						
General Service			**15.24%**			**14.78%**
Police & Fire			**20.39%**			**19.65%**
Aggregate (Default)			**16.46%**			**16.06%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($279,280)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.63%)
B. Actual employer payroll	1,023,963
C. Payment to transition liability/(surplus)	(16,691)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.63%)
B. Actual employer payroll	1,125,750
C. Payment to transition liability/(surplus)	(18,349)
4. Supplemental payment to transition liability	0
5. Interest	(18,318)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($262,558)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(262,558)	(279,280)
2. Combined valuation payroll	2,249,922	2,049,930
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.30%)**	**(1.43%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,249,922	2,049,930
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

1 *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Shady Cove/2254
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Shady Cove/2254

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Shady Cove/2254

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Shady Cove -- #2254

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Shady Cove to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Shady Cove.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Shady Cove

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(19.61%)	(19.61%)	(19.61%)	(19.61%)	(19.61%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**8.58%**	**7.46%**	**13.28%**	**1.11%**	**5.84%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**9.07%**	**7.95%**	**13.77%**	**1.53%**	**6.26%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Shady Cove

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$403,709	$407,596
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(330,210)	(330,828)
Allocated pooled OPSRP UAL	32,239	30,256
Side account	0	0
Net unfunded pension actuarial accrued liability	105,738	107,024
Combined valuation payroll	187,260	212,823
Net pension UAL as a percentage of payroll	56%	50%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(19.61%)	(16.36%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($25)	$1,033
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($330,828)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(18.77%)
B. Actual employer payroll	98,903
C. Payment to transition liability/(surplus)	(12,303)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(18.77%)
B. Actual employer payroll	91,254
C. Payment to transition liability/(surplus)	(11,353)
4. Supplemental payment to transition liability	0
5. Interest	(23,038)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($330,210)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(330,210)	(330,828)
2. Combined valuation payroll	187,260	212,823
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(19.61%)**	**(16.36%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	187,260	212,823
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Sherwood/2142
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Sherwood/2142

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Sherwood -- #2142

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Sherwood to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Sherwood.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Sherwood

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.44%	13.77%	20.65%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.25%)	(0.25%)	(0.25%)	(0.25%)	(0.25%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.74%**	**24.07%**	**30.95%**	**18.79%**	**23.52%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.23%**	**24.56%**	**31.44%**	**19.21%**	**23.94%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Sherwood

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$15,229,073	$13,317,620
Allocated pre-SLGRP pooled liability/(surplus)	(1,068,696)	(1,143,082)
Transition liability/(surplus)	(157,798)	(165,229)
Allocated pooled OPSRP UAL	1,216,152	988,563
Side account	0	0
Net unfunded pension actuarial accrued liability	15,218,731	12,997,872
Combined valuation payroll	7,063,992	6,953,683
Net pension UAL as a percentage of payroll	215%	187%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.25%)	(0.25%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($962)	$33,765
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$449,056	$78,495	17.55%	$434,789	$76,305
Tier 2 General Service	12.54%	1,355,104	169,930	12.26%	1,393,672	170,864
Total General Service		**1,804,160**	**248,425**		**1,828,461**	**247,169**
Tier 1 Police & Fire	22.14%	435,771	96,480	21.37%	430,474	91,992
Tier 2 Police & Fire	19.73%	710,334	140,149	18.95%	698,378	132,343
Total Police & Fire		**1,146,105**	**236,629**		**1,128,852**	**224,335**
Total		**$2,950,265**	**$485,054**		**$2,957,313**	**$471,504**
Employer normal cost rate						
General Service			**13.77%**			**13.52%**
Police & Fire			**20.65%**			**19.87%**
Aggregate (Default)			**16.44%**			**15.94%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($165,229)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.27%)
B. Actual employer payroll	3,398,974
C. Payment to transition liability/(surplus)	(9,177)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.27%)
B. Actual employer payroll	3,430,660
C. Payment to transition liability/(surplus)	(9,263)
4. Supplemental payment to transition liability	0
5. Interest	(11,009)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($157,798)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(157,798)	(165,229)
2. Combined valuation payroll	7,063,992	6,953,683
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.25%)**	**(0.25%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	7,063,992	6,953,683
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Silverton/2273
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Silverton/2273

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Silverton -- #2273

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Silverton to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Silverton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Silverton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.30%	15.53%	20.59%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.10%)	(0.10%)	(0.10%)	(0.10%)	(0.10%)
Side account rate relief [2]	(2.26%)	(2.26%)	(2.26%)	(2.26%)	(2.26%)
Net pension contribution rate	**25.49%**	**23.72%**	**28.78%**	**16.68%**	**21.41%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.98%**	**24.21%**	**29.27%**	**17.10%**	**21.83%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Silverton

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$6,249,888	$5,536,675
Allocated pre-SLGRP pooled liability/(surplus)	(438,584)	(475,225)
Transition liability/(surplus)	(24,783)	(25,638)
Allocated pooled OPSRP UAL	499,099	410,986
Side account	589,348	614,164
Net unfunded pension actuarial accrued liability	5,696,272	4,832,634
Combined valuation payroll	2,899,005	2,890,928
Net pension UAL as a percentage of payroll	196%	167%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.10%)	(0.09%)
Side account rate relief	(2.26%)	(2.24%)
Allocated pooled RHIA UAL	($395)	$14,037
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$535,055	$93,528	17.55%	$611,654	$107,345
Tier 2 General Service	12.54%	350,395	43,940	12.26%	453,042	55,543
Total General Service		**885,450**	**137,468**		**1,064,696**	**162,888**
Tier 1 Police & Fire	22.14%	171,766	38,029	21.37%	164,338	35,119
Tier 2 Police & Fire	19.73%	307,179	60,606	18.95%	304,413	57,686
Total Police & Fire		**478,945**	**98,635**		**468,751**	**92,805**
Total		**$1,364,395**	**$236,103**		**$1,533,447**	**$255,693**
Employer normal cost rate						
General Service			**15.53%**			**15.30%**
Police & Fire			**20.59%**			**19.80%**
Aggregate (Default)			**17.30%**			**16.67%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($25,638)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.09%)
B. Actual employer payroll	1,402,689
C. Payment to transition liability/(surplus)	(1,262)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.09%)
B. Actual employer payroll	1,468,005
C. Payment to transition liability/(surplus)	(1,322)
4. Supplemental payment to transition liability	0
5. Interest	(1,729)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($24,783)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(24,783)	(25,638)
2. Combined valuation payroll	2,899,005	2,890,928
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.10%)**	**(0.09%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$614,164**	**$614,164**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(65,961)	(65,961)
5. Side account earnings during 2016		42,145	42,145
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$589,348**	**$589,348**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$589,348	$614,164
Side Account 2	0	0
Side Account 3	0	0
Total	**$589,348**	**$614,164**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$589,348	$614,164
2. Combined valuation payroll	2,899,005	2,890,928
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(2.26%)	(2.24%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Sisters/2221
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Sisters/2221

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Sisters -- #2221

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Sisters to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Sisters.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Sisters

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.75%	13.75%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(4.64%)	(4.64%)	(4.64%)	(4.64%)	(4.64%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**19.66%**	**19.66%**	**26.57%**	**14.40%**	**19.13%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**20.15%**	**20.15%**	**27.06%**	**14.82%**	**19.55%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Sisters

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,694,131	$1,681,310
Allocated pre-SLGRP pooled liability/(surplus)	(118,885)	(144,311)
Transition liability/(surplus)	(327,783)	(338,129)
Allocated pooled OPSRP UAL	135,289	124,803
Side account	0	0
Net unfunded pension actuarial accrued liability	1,382,752	1,323,673
Combined valuation payroll	785,821	877,882
Net pension UAL as a percentage of payroll	176%	151%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(4.64%)	(4.05%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($107)	$4,263
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$46,786	$8,178	17.55%	$0	$0
Tier 2 General Service	12.54%	144,833	18,162	12.26%	214,719	26,325
Total General Service		**191,619**	**26,340**		**214,719**	**26,325**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$191,619**	**$26,340**		**$214,719**	**$26,325**
Employer normal cost rate						
General Service			**13.75%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**13.75%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($338,129)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.13%)
B. Actual employer payroll	403,770
C. Payment to transition liability/(surplus)	(16,676)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.13%)
B. Actual employer payroll	400,482
C. Payment to transition liability/(surplus)	(16,539)
4. Supplemental payment to transition liability	0
5. Interest	(22,869)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($327,783)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(327,783)	(338,129)
2. Combined valuation payroll	785,821	877,882
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(4.64%)**	**(4.05%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	785,821	877,882
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Springfield/2278
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Springfield/2278

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Springfield -- #2278

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Springfield to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Springfield.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Springfield

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.00%	13.26%	20.77%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(7.39%)	(7.39%)	(7.39%)	(7.39%)	(7.39%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.84%**	**18.10%**	**25.61%**	**13.33%**	**18.06%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**22.33%**	**18.59%**	**26.10%**	**13.75%**	**18.48%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Springfield

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$64,533,668	$56,161,661
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(19,893,561)	(20,737,710)
Allocated pooled OPSRP UAL	5,153,483	4,168,863
Side account	0	0
Net unfunded pension actuarial accrued liability	49,793,590	39,592,814
Combined valuation payroll	29,933,885	29,324,337
Net pension UAL as a percentage of payroll	166%	135%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(7.39%)	(7.44%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,076)	$142,389
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$1,092,228	$190,921	17.55%	$1,433,710	$251,616
Tier 2 General Service	12.54%	6,437,873	807,309	12.26%	6,649,696	815,253
Total General Service		**7,530,101**	**998,230**		**8,083,406**	**1,066,869**
Tier 1 Police & Fire	22.14%	3,241,613	717,693	21.37%	3,436,720	734,427
Tier 2 Police & Fire	19.73%	4,237,625	836,083	18.95%	3,997,638	757,552
Total Police & Fire		**7,479,238**	**1,553,776**		**7,434,358**	**1,491,979**
Total		**$15,009,339**	**$2,552,006**		**$15,517,764**	**$2,558,848**
Employer normal cost rate						
General Service			**13.26%**			**13.20%**
Police & Fire			**20.77%**			**20.07%**
Aggregate (Default)			**17.00%**			**16.49%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($20,737,710)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate [1]	(7.56%)
B. Actual employer payroll	14,571,237
C. Payment to transition liability/(surplus)	(1,101,585)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate [1]	(7.56%)
B. Actual employer payroll	14,953,525
C. Payment to transition liability/(surplus)	(1,130,487)
4. Supplemental payment to transition liability	0
5. Interest	(1,387,923)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($19,893,561)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(19,893,561)	(20,737,710)
2. Combined valuation payroll	29,933,885	29,324,337
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(7.39%)**	**(7.44%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	29,933,885	29,324,337
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of St Helens/2123
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of St Helens/2123

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of St Helens/2123

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of St Helens -- #2123

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of St Helens to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of St Helens.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of St Helens

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.54%	13.77%	20.32%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	2.20%	2.20%	2.20%	2.20%	2.20%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.97%**	**28.20%**	**34.75%**	**22.92%**	**27.65%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**30.46%**	**28.69%**	**35.24%**	**23.34%**	**28.07%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of St Helens

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$9,007,028	$7,615,941
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	826,086	852,876
Allocated pooled OPSRP UAL	719,277	565,329
Side account	0	0
Net unfunded pension actuarial accrued liability	10,552,391	9,034,146
Combined valuation payroll	4,177,902	3,976,599
Net pension UAL as a percentage of payroll	253%	227%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	2.20%	2.26%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($569)	$19,309
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$309,153	$54,040	17.55%	$344,800	$60,512
Tier 2 General Service	12.54%	928,912	116,486	12.26%	1,026,741	125,878
Total General Service		**1,238,065**	**170,526**		**1,371,541**	**186,390**
Tier 1 Police & Fire	22.14%	111,898	24,774	21.37%	308,544	65,936
Tier 2 Police & Fire	19.73%	344,906	68,050	18.95%	330,170	62,567
Total Police & Fire		**456,804**	**92,824**		**638,714**	**128,503**
Total		**$1,694,869**	**$263,350**		**$2,010,255**	**$314,893**
Employer normal cost rate						
General Service			**13.77%**			**13.59%**
Police & Fire			**20.32%**			**20.12%**
Aggregate (Default)			**15.54%**			**15.66%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$852,876
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	2.10%
B. Actual employer payroll	1,982,532
C. Payment to transition liability/(surplus)	41,633
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	2.10%
B. Actual employer payroll	2,037,615
C. Payment to transition liability/(surplus)	42,791
4. Supplemental payment to transition liability	0
5. Interest	57,634
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$826,086**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	826,086	852,876
2. Combined valuation payroll	4,177,902	3,976,599
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**2.20%**	**2.26%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	4,177,902	3,976,599
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Stayton/2757
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Stayton/2757

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Stayton/2757

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Stayton -- #2757

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Stayton to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Stayton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Stayton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	19.73%	14.84%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.92%)	(0.92%)	(0.92%)	(0.92%)	(0.92%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.36%**	**24.47%**	**29.36%**	**18.12%**	**22.85%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**29.85%**	**24.96%**	**29.85%**	**18.54%**	**23.27%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Stayton

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$2,145,211	$1,822,592
Allocated pre-SLGRP pooled liability/(surplus)	(150,540)	(156,437)
Transition liability/(surplus)	(82,121)	(86,000)
Allocated pooled OPSRP UAL	171,311	135,290
Side account	0	0
Net unfunded pension actuarial accrued liability	2,083,861	1,715,445
Combined valuation payroll	995,054	951,651
Net pension UAL as a percentage of payroll	209%	180%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.92%)	(0.95%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($135)	$4,621
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	547,681	108,057	18.95%	537,232	101,805
Total Police & Fire		**547,681**	**108,057**		**537,232**	**101,805**
Total		**$547,681**	**$108,057**		**$537,232**	**$101,805**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**19.73%**			**18.95%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($86,000)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.01%)
B. Actual employer payroll	468,684
C. Payment to transition liability/(surplus)	(4,734)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.01%)
B. Actual employer payroll	482,595
C. Payment to transition liability/(surplus)	(4,874)
4. Supplemental payment to transition liability	0
5. Interest	(5,729)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($82,121)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(82,121)	(86,000)
2. Combined valuation payroll	995,054	951,651
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.92%)**	**(0.95%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	995,054	951,651
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Sutherlin/2217
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Sutherlin/2217

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Sutherlin/2217

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Sutherlin -- #2217

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Sutherlin to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Sutherlin.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Sutherlin

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.55%	14.71%	20.51%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(8.00%)	(8.00%)	(8.00%)	(8.00%)	(8.00%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**19.10%**	**17.26%**	**23.06%**	**11.04%**	**15.77%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**19.59%**	**17.75%**	**23.55%**	**11.46%**	**16.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Sutherlin

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$4,993,805	$3,824,921
Allocated pre-SLGRP pooled liability/(surplus)	(350,439)	(328,302)
Transition liability/(surplus)	(1,666,009)	(1,727,909)
Allocated pooled OPSRP UAL	398,792	283,923
Side account	0	0
Net unfunded pension actuarial accrued liability	3,376,149	2,052,633
Combined valuation payroll	2,316,372	1,997,150
Net pension UAL as a percentage of payroll	146%	103%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(8.00%)	(9.10%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($315)	$9,697
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$227,435	$39,756	17.55%	$347,775	$61,035
Tier 2 General Service	12.54%	290,227	36,394	12.26%	276,757	33,930
Total General Service		**517,662**	**76,150**		**624,532**	**94,965**
Tier 1 Police & Fire	22.14%	77,788	17,222	21.37%	75,264	16,084
Tier 2 Police & Fire	19.73%	163,317	32,222	18.95%	161,846	30,670
Total Police & Fire		**241,105**	**49,444**		**237,110**	**46,754**
Total		**$758,767**	**$125,594**		**$861,642**	**$141,719**
Employer normal cost rate						
General Service			**14.71%**			**15.21%**
Police & Fire			**20.51%**			**19.72%**
Aggregate (Default)			**16.55%**			**16.45%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,727,909)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(7.87%)
B. Actual employer payroll	1,065,823
C. Payment to transition liability/(surplus)	(83,880)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(7.87%)
B. Actual employer payroll	1,197,633
C. Payment to transition liability/(surplus)	(94,253)
4. Supplemental payment to transition liability	0
5. Interest	(116,233)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,666,009)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,666,009)	(1,727,909)
2. Combined valuation payroll	2,316,372	1,997,150
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(8.00%)**	**(9.10%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,316,372	1,997,150
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Talent/2188
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Talent/2188

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Talent/2188

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee

Scott Preppernau

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Talent -- #2188

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Talent to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Talent.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Talent

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.58%	16.33%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.09%)	(5.09%)	(5.09%)	(5.09%)	(5.09%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.72%**	**23.47%**	**26.87%**	**15.63%**	**20.36%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.21%**	**23.96%**	**27.36%**	**16.05%**	**20.78%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Talent

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$3,233,730	$2,524,202
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(687,167)	(735,008)
Allocated pooled OPSRP UAL	258,237	187,371
Side account	0	0
Net unfunded pension actuarial accrued liability	2,804,800	1,976,565
Combined valuation payroll	1,499,963	1,317,991
Net pension UAL as a percentage of payroll	187%	150%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.09%)	(5.87%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($204)	$6,400
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$189,977	$33,208	17.55%	$226,749	$39,794
Tier 2 General Service	12.54%	57,439	7,203	12.26%	56,816	6,966
Total General Service		**247,416**	**40,411**		**283,565**	**46,760**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	143,386	28,290	18.95%	143,452	27,184
Total Police & Fire		**143,386**	**28,290**		**143,452**	**27,184**
Total		**$390,802**	**$68,701**		**$427,017**	**$73,944**
Employer normal cost rate						
General Service			**16.33%**			**16.49%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**17.58%**			**17.32%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($735,008)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(6.80%)
B. Actual employer payroll	674,533
C. Payment to transition liability/(surplus)	(45,868)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(6.80%)
B. Actual employer payroll	734,039
C. Payment to transition liability/(surplus)	(49,915)
4. Supplemental payment to transition liability	0
5. Interest	(47,942)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($687,167)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(687,167)	(735,008)
2. Combined valuation payroll	1,499,963	1,317,991
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.09%)**	**(5.87%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,499,963	1,317,991
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Tigard/2295
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Tigard/2295

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Tigard/2295

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Tigard -- #2295

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Tigard to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Tigard.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Tigard

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.57%	14.84%	20.57%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(5.24%)	(5.24%)	(5.24%)	(5.24%)	(5.24%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.88%**	**20.15%**	**25.88%**	**13.80%**	**18.53%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.37%**	**20.64%**	**26.37%**	**14.22%**	**18.95%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Tigard

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$14,022,407	$11,864,945
Allocated pre-SLGRP pooled liability/(surplus)	(984,019)	(1,018,395)
Transition liability/(surplus)	(3,066,998)	(3,181,057)
Allocated pooled OPSRP UAL	1,119,791	880,731
Side account	0	0
Net unfunded pension actuarial accrued liability	11,091,181	8,546,224
Combined valuation payroll	6,504,281	6,195,181
Net pension UAL as a percentage of payroll	171%	138%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(5.24%)	(5.40%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($886)	$30,082
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	1,166,355	258,231	21.37%	1,253,886	267,955
Tier 2 Police & Fire	19.73%	2,163,025	426,765	18.95%	2,169,855	411,188
Total Police & Fire		**3,329,380**	**684,996**		**3,423,741**	**679,143**
Total		**$3,329,380**	**$684,996**		**$3,423,741**	**$679,143**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.57%**			**19.84%**
Aggregate (Default)			**20.57%**			**19.84%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($3,181,057)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.20%)
B. Actual employer payroll	3,122,738
C. Payment to transition liability/(surplus)	(162,382)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.20%)
B. Actual employer payroll	3,185,633
C. Payment to transition liability/(surplus)	(165,654)
4. Supplemental payment to transition liability	0
5. Interest	(213,977)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($3,066,998)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(3,066,998)	(3,181,057)
2. Combined valuation payroll	6,504,281	6,195,181
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.24%)**	**(5.40%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	6,504,281	6,195,181
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Tillamook/2128
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Tillamook/2128

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Tillamook/2128

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Tillamook -- #2128

November 2017

Secondary Employers

2755 Tillamook Water Commission

CONTENTS

Executive Summary

Milliman has prepared this report for City of Tillamook to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Tillamook.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Tillamook

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.06%	13.99%	20.57%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.37%)	(3.37%)	(3.37%)	(3.37%)	(3.37%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.92%**	**22.85%**	**29.43%**	**17.35%**	**22.08%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.41%**	**23.34%**	**29.92%**	**17.77%**	**22.50%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Tillamook

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$4,361,502	$3,674,954
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(612,549)	(634,081)
Allocated pooled OPSRP UAL	348,298	272,791
Side account	0	0
Net unfunded pension actuarial accrued liability	4,097,251	3,313,664
Combined valuation payroll	2,023,079	1,918,846
Net pension UAL as a percentage of payroll	203%	173%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.37%)	(3.48%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($275)	$9,317
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$183,182	$32,020	17.55%	$212,107	$37,225
Tier 2 General Service	12.54%	442,342	55,470	12.26%	430,908	52,829
Total General Service		**625,524**	**87,490**		**643,015**	**90,054**
Tier 1 Police & Fire	22.14%	100,670	22,288	21.37%	96,359	20,592
Tier 2 Police & Fire	19.73%	187,577	37,009	18.95%	184,296	34,924
Total Police & Fire		**288,247**	**59,297**		**280,655**	**55,516**
Total		**$913,771**	**$146,787**		**$923,670**	**$145,570**
Employer normal cost rate						
General Service			**13.99%**			**14.00%**
Police & Fire			**20.57%**			**19.78%**
Aggregate (Default)			**16.06%**			**15.76%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($634,081)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(3.46%)
B. Actual employer payroll	899,274
C. Payment to transition liability/(surplus)	(31,115)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(3.46%)
B. Actual employer payroll	958,172
C. Payment to transition liability/(surplus)	(33,153)
4. Supplemental payment to transition liability	0
5. Interest	(42,736)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($612,549)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(612,549)	(634,081)
2. Combined valuation payroll	2,023,079	1,918,846
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(3.37%)**	**(3.48%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,023,079	1,918,846
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Toledo/2275
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Toledo/2275

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Toledo -- #2275

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Toledo to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Toledo.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Toledo

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.68%	14.60%	20.16%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(10.06%)	(10.06%)	(10.06%)	(10.06%)	(10.06%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**17.17%**	**15.09%**	**20.65%**	**8.98%**	**13.71%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**17.66%**	**15.58%**	**21.14%**	**9.40%**	**14.13%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Toledo

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$4,506,653	$4,128,808
Allocated pre-SLGRP pooled liability/(surplus)	(316,253)	(354,385)
Transition liability/(surplus)	(1,891,707)	(1,952,231)
Allocated pooled OPSRP UAL	359,889	306,480
Side account	0	0
Net unfunded pension actuarial accrued liability	2,658,582	2,128,672
Combined valuation payroll	2,090,407	2,155,822
Net pension UAL as a percentage of payroll	127%	99%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(10.06%)	(9.53%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($285)	$10,468
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$213,709	$37,356	17.55%	$262,170	$46,011
Tier 2 General Service	12.54%	299,709	37,584	12.26%	222,593	27,290
Total General Service		**513,418**	**74,940**		**484,763**	**73,301**
Tier 1 Police & Fire	22.14%	54,511	12,069	21.37%	128,406	27,440
Tier 2 Police & Fire	19.73%	254,256	50,165	18.95%	267,881	50,763
Total Police & Fire		**308,767**	**62,234**		**396,287**	**78,203**
Total		**$822,185**	**$137,174**		**$881,050**	**$151,504**
Employer normal cost rate						
General Service			**14.60%**			**15.12%**
Police & Fire			**20.16%**			**19.73%**
Aggregate (Default)			**16.68%**			**17.20%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,952,231)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(8.95%)
B. Actual employer payroll	1,105,663
C. Payment to transition liability/(surplus)	(98,957)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(8.95%)
B. Actual employer payroll	1,045,225
C. Payment to transition liability/(surplus)	(93,547)
4. Supplemental payment to transition liability	0
5. Interest	(131,980)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,891,707)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,891,707)	(1,952,231)
2. Combined valuation payroll	2,090,407	2,155,822
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(10.06%)**	**(9.53%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,090,407	2,155,822
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Troutdale/2237
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Troutdale/2237

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Troutdale/2237

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Troutdale -- #2237

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Troutdale to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Troutdale.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Troutdale

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.48%	14.48%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.81%	10.81%	10.81%	10.81%	10.81%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(12.25%)	(12.25%)	(12.25%)	(12.25%)	(12.25%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**14.60%**	**14.60%**	**20.78%**	**8.61%**	**13.34%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**15.09%**	**15.09%**	**21.27%**	**9.03%**	**13.76%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Troutdale

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$5,642,233	$4,982,063
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,883,680)	(2,844,975)
Allocated pooled OPSRP UAL	450,573	369,817
Side account	0	0
Net unfunded pension actuarial accrued liability	3,209,126	2,506,905
Combined valuation payroll	2,617,145	2,601,342
Net pension UAL as a percentage of payroll	123%	96%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(12.25%)	(11.51%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($356)	$12,631
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$570,269	$99,683	17.55%	$691,744	$121,401
Tier 2 General Service	12.54%	880,906	110,466	12.26%	827,278	101,424
Total General Service		**1,451,175**	**210,149**		**1,519,022**	**222,825**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,451,175**	**$210,149**		**$1,519,022**	**$222,825**
Employer normal cost rate						
General Service			**14.48%**			**14.67%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.48%**			**14.67%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($2,844,975)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.95%)
B. Actual employer payroll	1,372,303
C. Payment to transition liability/(surplus)	(81,652)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.95%)
B. Actual employer payroll	1,358,479
C. Payment to transition liability/(surplus)	(80,830)
4. Supplemental payment to transition liability	0
5. Interest	(201,187)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,883,680)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(2,883,680)	(2,844,975)
2. Combined valuation payroll	2,617,145	2,601,342
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(12.25%)**	**(11.51%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,617,145	2,601,342
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Tualatin/2288
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Tualatin/2288

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Tualatin -- #2288

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Tualatin to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Tualatin.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Tualatin

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.99%	13.74%	20.47%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	1.45%	1.45%	1.45%	1.45%	1.45%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.99%**	**25.74%**	**32.47%**	**20.49%**	**25.22%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**29.48%**	**26.23%**	**32.96%**	**20.91%**	**25.64%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Tualatin

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$23,540,959	$19,711,770
Allocated pre-SLGRP pooled liability/(surplus)	(1,651,980)	(1,691,906)
Transition liability/(surplus)	1,420,787	1,462,875
Allocated pooled OPSRP UAL	1,879,917	1,463,199
Side account	0	0
Net unfunded pension actuarial accrued liability	25,189,683	20,945,938
Combined valuation payroll	10,919,453	10,292,334
Net pension UAL as a percentage of payroll	231%	204%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	1.45%	1.50%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,487)	$49,976
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$473,690	$82,801	17.55%	$637,354	$111,856
Tier 2 General Service	12.54%	1,469,357	184,257	12.26%	1,513,536	185,560
Total General Service		**1,943,047**	**267,058**		**2,150,890**	**297,416**
Tier 1 Police & Fire	22.14%	554,510	122,769	21.37%	863,354	184,499
Tier 2 Police & Fire	19.73%	1,253,083	247,233	18.95%	991,686	187,924
Total Police & Fire		**1,807,593**	**370,002**		**1,855,040**	**372,423**
Total		**$3,750,640**	**$637,060**		**$4,005,930**	**$669,839**
Employer normal cost rate						
General Service			**13.74%**			**13.83%**
Police & Fire			**20.47%**			**20.08%**
Aggregate (Default)			**16.99%**			**16.72%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$1,462,875
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	1.42%
B. Actual employer payroll	4,791,183
C. Payment to transition liability/(surplus)	68,035
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	1.42%
B. Actual employer payroll	5,153,385
C. Payment to transition liability/(surplus)	73,178
4. Supplemental payment to transition liability	0
5. Interest	99,125
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$1,420,787**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	1,420,787	1,462,875
2. Combined valuation payroll	10,919,453	10,292,334
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**1.45%**	**1.50%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	10,919,453	10,292,334
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Turner/2228
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Turner/2228

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Turner -- #2228

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Turner to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Turner.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Turner

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.46%	12.54%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(0.64%)	(0.64%)	(0.64%)	(0.64%)	(0.64%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.05%**	**24.13%**	**31.32%**	**20.08%**	**24.81%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.54%**	**24.62%**	**31.81%**	**20.50%**	**25.23%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Turner

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$866,133	$639,809
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(23,135)	(24,141)
Allocated pooled OPSRP UAL	69,167	47,493
Side account	0	0
Net unfunded pension actuarial accrued liability	912,165	663,161
Combined valuation payroll	401,755	334,071
Net pension UAL as a percentage of payroll	227%	199%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(0.64%)	(0.76%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($55)	$1,622
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	196,630	24,657	12.26%	145,680	17,860
Total General Service		**196,630**	**24,657**		**145,680**	**17,860**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	71,882	14,182	18.95%	109,576	20,765
Total Police & Fire		**71,882**	**14,182**		**109,576**	**20,765**
Total		**$268,512**	**$38,839**		**$255,256**	**$38,625**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**14.46%**			**15.13%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($24,141)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.77%)
B. Actual employer payroll	161,511
C. Payment to transition liability/(surplus)	(1,244)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.77%)
B. Actual employer payroll	178,713
C. Payment to transition liability/(surplus)	(1,376)
4. Supplemental payment to transition liability	0
5. Interest	(1,614)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($23,135)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(23,135)	(24,141)
2. Combined valuation payroll	401,755	334,071
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.64%)**	**(0.76%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	401,755	334,071
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Umatilla/2175
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Umatilla/2175

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Umatilla/2175

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Umatilla -- #2175

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Umatilla to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Umatilla.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Umatilla

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.23%	14.11%	21.23%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(8.34%)	(8.34%)	(8.34%)	(8.34%)	(8.34%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.44%**	**16.32%**	**23.44%**	**10.70%**	**15.43%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**18.93%**	**16.81%**	**23.93%**	**11.12%**	**15.85%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Umatilla

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$4,116,722	$3,596,509
Allocated pre-SLGRP pooled liability/(surplus)	(288,890)	(308,697)
Transition liability/(surplus)	(1,431,528)	(1,500,258)
Allocated pooled OPSRP UAL	328,750	266,968
Side account	0	0
Net unfunded pension actuarial accrued liability	2,725,054	2,054,522
Combined valuation payroll	1,909,538	1,877,887
Net pension UAL as a percentage of payroll	143%	109%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(8.34%)	(8.41%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($260)	$9,118
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	**Actuarial Valuation as of** **December 31, 2016**	 **December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) **RHIPA**	**Actuarial Valuation as of** **December 31, 2016**	 **December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$198,250	$34,654	17.55%	$191,309	$33,575
Tier 2 General Service	12.54%	425,897	53,407	12.26%	414,586	50,828
Total General Service		**624,147**	**88,061**		**605,895**	**84,403**
Tier 1 Police & Fire	22.14%	165,538	36,650	21.37%	150,009	32,057
Tier 2 Police & Fire	19.73%	99,710	19,673	18.95%	84,987	16,105
Total Police & Fire		**265,248**	**56,323**		**234,996**	**48,162**
Total		**$889,395**	**$144,384**		**$840,891**	**$132,565**
Employer normal cost rate						
General Service			**14.11%**			**13.93%**
Police & Fire			**21.23%**			**20.49%**
Aggregate (Default)			**16.23%**			**15.76%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,500,258)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(8.75%)
B. Actual employer payroll	929,139
C. Payment to transition liability/(surplus)	(81,300)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(8.75%)
B. Actual employer payroll	997,760
C. Payment to transition liability/(surplus)	(87,304)
4. Supplemental payment to transition liability	0
5. Interest	(99,874)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,431,528)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,431,528)	(1,500,258)
2. Combined valuation payroll	1,909,538	1,877,887
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(8.34%)**	**(8.41%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	**Continuing**	**Total**
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,909,538	1,877,887
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Vale/2145
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Vale/2145

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Vale/2145

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Vale -- #2145

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Vale to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Vale.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Vale

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.64%	15.59%	19.74%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	5.87%	5.87%	5.87%	5.87%	5.87%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**32.06%**	**32.01%**	**36.16%**	**24.91%**	**29.64%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**32.55%**	**32.50%**	**36.65%**	**25.33%**	**30.06%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Vale

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$993,358	$928,470
Allocated pre-SLGRP pooled liability/(surplus)	(69,709)	(79,693)
Transition liability/(surplus)	243,238	257,191
Allocated pooled OPSRP UAL	79,327	68,920
Side account	0	0
Net unfunded pension actuarial accrued liability	1,246,214	1,174,888
Combined valuation payroll	460,768	484,793
Net pension UAL as a percentage of payroll	270%	242%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	5.87%	5.58%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($63)	$2,354
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$84,131	$14,706	17.55%	$84,834	$14,888
Tier 2 General Service	12.54%	51,990	6,520	12.26%	97,837	11,995
Total General Service		**136,121**	**21,226**		**182,671**	**26,883**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	1,474	291	18.95%	1,636	310
Total Police & Fire		**1,474**	**291**		**1,636**	**310**
Total		**$137,595**	**$21,517**		**$184,307**	**$27,193**
Employer normal cost rate						
General Service			**15.59%**			**14.72%**
Police & Fire			**19.74%**			**18.95%**
Aggregate (Default)			**15.64%**			**14.75%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$257,191
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	7.24%
B. Actual employer payroll	206,668
C. Payment to transition liability/(surplus)	14,963
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	7.24%
B. Actual employer payroll	220,436
C. Payment to transition liability/(surplus)	15,960
4. Supplemental payment to transition liability	0
5. Interest	16,970
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$243,238**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	243,238	257,191
2. Combined valuation payroll	460,768	484,793
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**5.87%**	**5.58%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	460,768	484,793
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Veneta/2285
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Veneta/2285

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Veneta/2285

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Veneta -- #2285

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Veneta to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Veneta.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Veneta

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.81%	15.81%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.41%)	(2.41%)	(2.41%)	(2.41%)	(2.41%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.95%**	**23.95%**	**28.80%**	**16.63%**	**21.36%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.44%**	**24.44%**	**29.29%**	**17.05%**	**21.78%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Veneta

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$2,064,988	$1,704,291
Allocated pre-SLGRP pooled liability/(surplus)	(144,910)	(146,283)
Transition liability/(surplus)	(207,376)	(216,135)
Allocated pooled OPSRP UAL	164,904	126,509
Side account	0	0
Net unfunded pension actuarial accrued liability	1,877,606	1,468,382
Combined valuation payroll	957,843	889,881
Net pension UAL as a percentage of payroll	196%	165%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(2.41%)	(2.56%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($130)	$4,321
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$345,506	$60,394	17.55%	$329,696	$57,862
Tier 2 General Service	12.54%	176,958	22,191	12.26%	168,753	20,689
Total General Service		**522,464**	**82,585**		**498,449**	**78,551**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$522,464**	**$82,585**		**$498,449**	**$78,551**
Employer normal cost rate						
General Service			**15.81%**			**15.76%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.81%**			**15.76%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($216,135)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(2.55%)
B. Actual employer payroll	437,299
C. Payment to transition liability/(surplus)	(11,151)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(2.55%)
B. Actual employer payroll	473,564
C. Payment to transition liability/(surplus)	(12,076)
4. Supplemental payment to transition liability	0
5. Interest	(14,468)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($207,376)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(207,376)	(216,135)
2. Combined valuation payroll	957,843	889,881
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.41%)**	**(2.56%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	957,843	889,881
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Vernonia/2125
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Vernonia/2125

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Vernonia/2125

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Vernonia -- #2125

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Vernonia to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Vernonia.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Vernonia

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.48%	17.48%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(5.55%)	(5.55%)	(5.55%)	(5.55%)	(5.55%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.48%**	**22.48%**	**25.66%**	**13.49%**	**18.22%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**22.97%**	**22.97%**	**26.15%**	**13.91%**	**18.64%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Vernonia

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$1,544,041	$1,244,268
Allocated pre-SLGRP pooled liability/(surplus)	(108,353)	(106,798)
Transition liability/(surplus)	(357,490)	(373,044)
Allocated pooled OPSRP UAL	123,303	92,362
Side account	0	0
Net unfunded pension actuarial accrued liability	1,201,501	856,788
Combined valuation payroll	716,202	649,684
Net pension UAL as a percentage of payroll	168%	132%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(5.55%)	(6.04%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($98)	$3,155
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$70,800	$12,376	17.55%	$71,872	$12,614
Tier 2 General Service	12.54%	0	0	12.26%	37,208	4,562
Total General Service		**70,800**	**12,376**		**109,080**	**17,176**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$70,800**	**$12,376**		**$109,080**	**$17,176**
Employer normal cost rate						
General Service			**17.48%**			**15.75%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**17.48%**			**15.75%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($373,044)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(6.50%)
B. Actual employer payroll	291,794
C. Payment to transition liability/(surplus)	(18,967)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(6.50%)
B. Actual employer payroll	331,223
C. Payment to transition liability/(surplus)	(21,528)
4. Supplemental payment to transition liability	0
5. Interest	(24,941)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($357,490)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(357,490)	(373,044)
2. Combined valuation payroll	716,202	649,684
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.55%)**	**(6.04%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	716,202	649,684
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Wallowa/2200
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Wallowa/2200

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Wallowa -- #2200

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Wallowa to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Wallowa.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Wallowa

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.61%	13.61%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(6.12%)	(6.12%)	(6.12%)	(6.12%)	(6.12%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.04%**	**18.04%**	**25.09%**	**12.92%**	**17.65%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**18.53%**	**18.53%**	**25.58%**	**13.34%**	**18.07%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Wallowa

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$323,168	$290,869
Allocated pre-SLGRP pooled liability/(surplus)	(22,678)	(24,966)
Transition liability/(surplus)	(82,560)	(84,124)
Allocated pooled OPSRP UAL	25,807	21,591
Side account	0	0
Net unfunded pension actuarial accrued liability	243,737	203,370
Combined valuation payroll	149,901	151,875
Net pension UAL as a percentage of payroll	163%	134%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(6.12%)	(5.83%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($20)	$737
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$12,913	$2,257	17.55%	$11,994	$2,105
Tier 2 General Service	12.54%	46,827	5,872	12.26%	42,771	5,244
Total General Service		**59,740**	**8,129**		**54,765**	**7,349**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$59,740**	**$8,129**		**$54,765**	**$7,349**
Employer normal cost rate						
General Service			**13.61%**			**13.42%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**13.61%**			**13.42%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($84,124)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.61%)
B. Actual employer payroll	57,635
C. Payment to transition liability/(surplus)	(3,233)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.61%)
B. Actual employer payroll	72,917
C. Payment to transition liability/(surplus)	(4,091)
4. Supplemental payment to transition liability	0
5. Interest	(5,760)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($82,560)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(82,560)	(84,124)
2. Combined valuation payroll	149,901	151,875
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(6.12%)**	**(5.83%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	149,901	151,875
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Warrenton/2238
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Warrenton/2238

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Warrenton/2238

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Warrenton -- #2238

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Warrenton to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Warrenton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Warrenton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.42%	15.55%	20.20%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.32%)	(2.32%)	(2.32%)	(2.32%)	(2.32%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.33%**	**25.46%**	**30.11%**	**18.40%**	**23.13%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.82%**	**25.95%**	**30.60%**	**18.82%**	**23.55%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Warrenton

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$5,789,408	$5,103,174
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(560,043)	(589,960)
Allocated pooled OPSRP UAL	462,326	378,807
Side account	0	0
Net unfunded pension actuarial accrued liability	5,691,691	4,892,021
Combined valuation payroll	2,685,412	2,664,579
Net pension UAL as a percentage of payroll	212%	184%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.32%)	(2.33%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($366)	$12,938
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$398,493	$69,657	17.55%	$431,398	$75,710
Tier 2 General Service	12.54%	255,253	32,009	12.26%	298,317	36,574
Total General Service		**653,746**	**101,666**		**729,715**	**112,284**
Tier 1 Police & Fire	22.14%	86,025	19,046	21.37%	154,362	32,987
Tier 2 Police & Fire	19.73%	353,808	69,806	18.95%	270,995	51,354
Total Police & Fire		**439,833**	**88,852**		**425,357**	**84,341**
Total		**$1,093,579**	**$190,518**		**$1,155,072**	**$196,625**
Employer normal cost rate						
General Service			**15.55%**			**15.39%**
Police & Fire			**20.20%**			**19.83%**
Aggregate (Default)			**17.42%**			**17.02%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($589,960)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(2.53%)
B. Actual employer payroll	1,326,657
C. Payment to transition liability/(surplus)	(33,564)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(2.53%)
B. Actual employer payroll	1,400,213
C. Payment to transition liability/(surplus)	(35,426)
4. Supplemental payment to transition liability	0
5. Interest	(39,073)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($560,043)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(560,043)	(589,960)
2. Combined valuation payroll	2,685,412	2,664,579
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.32%)**	**(2.33%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	2,685,412	2,664,579
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of West Linn/2126
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of West Linn/2126

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of West Linn -- #2126

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of West Linn to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of West Linn.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of West Linn

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.78%	14.57%	21.18%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.05%)	(4.05%)	(4.05%)	(4.05%)	(4.05%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.96%**	**22.75%**	**29.36%**	**16.67%**	**21.40%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.45%**	**23.24%**	**29.85%**	**17.09%**	**21.82%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of West Linn

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$19,759,376	$17,221,625
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(3,338,442)	(3,480,299)
Allocated pooled OPSRP UAL	1,577,930	1,278,356
Side account	0	0
Net unfunded pension actuarial accrued liability	17,998,864	15,019,682
Combined valuation payroll	9,165,369	8,992,126
Net pension UAL as a percentage of payroll	196%	167%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.05%)	(4.07%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,248)	$43,663
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$1,110,588	$194,131	17.55%	$1,279,206	$224,501
Tier 2 General Service	12.54%	1,596,986	200,262	12.26%	1,403,198	172,032
Total General Service		**2,707,574**	**394,393**		**2,682,404**	**396,533**
Tier 1 Police & Fire	22.14%	816,561	180,787	21.37%	826,479	176,619
Tier 2 Police & Fire	19.73%	541,269	106,792	18.95%	666,250	126,254
Total Police & Fire		**1,357,830**	**287,579**		**1,492,729**	**302,873**
Total		**$4,065,404**	**$681,972**		**$4,175,133**	**$699,406**
Employer normal cost rate						
General Service			**14.57%**			**14.78%**
Police & Fire			**21.18%**			**20.29%**
Aggregate (Default)			**16.78%**			**16.75%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($3,480,299)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.28%)
B. Actual employer payroll	4,319,885
C. Payment to transition liability/(surplus)	(184,891)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.28%)
B. Actual employer payroll	4,436,481
C. Payment to transition liability/(surplus)	(189,881)
4. Supplemental payment to transition liability	0
5. Interest	(232,915)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($3,338,442)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(3,338,442)	(3,480,299)
2. Combined valuation payroll	9,165,369	8,992,126
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(4.05%)**	**(4.07%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	9,165,369	8,992,126
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Westfir/2265
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Westfir/2265

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Westfir -- #2265

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Westfir to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Westfir.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Westfir

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(15.59%)	(15.59%)	(15.59%)	(15.59%)	(15.59%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**12.60%**	**11.48%**	**17.30%**	**5.13%**	**9.86%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**13.09%**	**11.97%**	**17.79%**	**5.55%**	**10.28%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Westfir

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$77,721	$105,818
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(64,604)	(64,764)
Allocated pooled OPSRP UAL	6,207	7,855
Side account	0	0
Net unfunded pension actuarial accrued liability	19,324	48,909
Combined valuation payroll	36,051	55,252
Net pension UAL as a percentage of payroll	54%	89%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(15.59%)	(9.91%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5)	$268
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($64,764)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(10.62%)
B. Actual employer payroll	26,739
C. Payment to transition liability/(surplus)	(2,840)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(10.62%)
B. Actual employer payroll	17,202
C. Payment to transition liability/(surplus)	(1,827)
4. Supplemental payment to transition liability	0
5. Interest	(4,507)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($64,604)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(64,604)	(64,764)
2. Combined valuation payroll	36,051	55,252
3. Regular amortization factor	11.494	11.826
4. **Total transition liability/(surplus) rate**	**(15.59%)**	**(9.91%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	36,051	55,252
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Weston/2206
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Weston/2206

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Weston/2206

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Weston -- #2206

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Weston to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Weston.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Weston

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(9.87%)	(9.87%)	(9.87%)	(9.87%)	(9.87%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**14.90%**	**14.90%**	**23.02%**	**10.85%**	**15.58%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**15.39%**	**15.39%**	**23.51%**	**11.27%**	**16.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Weston

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$411,658	$344,646
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(237,765)	(240,128)
Allocated pooled OPSRP UAL	32,874	25,583
Side account	0	0
Net unfunded pension actuarial accrued liability	206,767	130,101
Combined valuation payroll	190,947	179,953
Net pension UAL as a percentage of payroll	108%	72%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(9.87%)	(10.38%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($26)	$874
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	35,187	4,412	12.26%	33,621	4,122
Total General Service		**35,187**	**4,412**		**33,621**	**4,122**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$35,187**	**$4,412**		**$33,621**	**$4,122**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($240,128)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(10.38%)
B. Actual employer payroll	88,793
C. Payment to transition liability/(surplus)	(9,217)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(10.38%)
B. Actual employer payroll	93,778
C. Payment to transition liability/(surplus)	(9,734)
4. Supplemental payment to transition liability	0
5. Interest	(16,588)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($237,765)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(237,765)	(240,128)
2. Combined valuation payroll	190,947	179,953
3. Regular amortization factor	12.618	12.861
4. **Total transition liability/(surplus) rate**	**(9.87%)**	**(10.38%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	190,947	179,953
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Wheeler/2147
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Wheeler/2147

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Wheeler -- #2147

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Wheeler to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Wheeler.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Wheeler

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.19%**	**27.07%**	**32.89%**	**20.72%**	**25.45%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**28.68%**	**27.56%**	**33.38%**	**21.14%**	**25.87%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Wheeler

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$364,052	$305,999
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	29,072	22,714
Side account	0	0
Net unfunded pension actuarial accrued liability	393,124	328,713
Combined valuation payroll	168,865	159,775
Net pension UAL as a percentage of payroll	233%	206%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	0.00%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($23)	$776
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	168,865	159,775
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	168,865	159,775
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Wilsonville/2240
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
City of Wilsonville/2240

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Wilsonville/2240

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Wilsonville -- #2240

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Wilsonville to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Wilsonville.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Wilsonville

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.00%	15.00%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.60%)	(0.60%)	(0.60%)	(0.60%)	(0.60%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.95%**	**24.95%**	**30.61%**	**18.44%**	**23.17%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.44%**	**25.44%**	**31.10%**	**18.86%**	**23.59%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Wilsonville

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$18,701,336	$17,377,736
Allocated pre-SLGRP pooled liability/(surplus)	(1,312,361)	(1,491,571)
Transition liability/(surplus)	(470,761)	(485,360)
Allocated pooled OPSRP UAL	1,493,438	1,289,944
Side account	0	0
Net unfunded pension actuarial accrued liability	18,411,652	16,690,749
Combined valuation payroll	8,674,598	9,073,638
Net pension UAL as a percentage of payroll	212%	184%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.60%)	(0.56%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,181)	$44,058
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$2,013,760	$352,005	17.55%	$2,545,679	$446,767
Tier 2 General Service	12.54%	2,029,669	254,520	12.26%	1,997,045	244,838
Total General Service		**4,043,429**	**606,525**		**4,542,724**	**691,605**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$4,043,429**	**$606,525**		**$4,542,724**	**$691,605**
Employer normal cost rate						
General Service			**15.00%**			**15.22%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.00%**			**15.22%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($485,360)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.53%)
B. Actual employer payroll	4,559,636
C. Payment to transition liability/(surplus)	(24,166)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.53%)
B. Actual employer payroll	4,391,855
C. Payment to transition liability/(surplus)	(23,277)
4. Supplemental payment to transition liability	0
5. Interest	(32,844)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($470,761)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(470,761)	(485,360)
2. Combined valuation payroll	8,674,598	9,073,638
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.60%)**	**(0.56%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	8,674,598	9,073,638
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Winston/2280
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Winston/2280

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Winston -- #2280

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Winston to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Winston.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Winston

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.97%	12.54%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(11.03%)	(11.03%)	(11.03%)	(11.03%)	(11.03%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**16.49%**	**12.06%**	**19.25%**	**8.01%**	**12.74%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**16.98%**	**12.55%**	**19.74%**	**8.43%**	**13.16%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Winston

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$2,405,700	$2,356,599
Allocated pre-SLGRP pooled liability/(surplus)	(168,819)	(202,272)
Transition liability/(surplus)	(1,107,052)	(1,121,287)
Allocated pooled OPSRP UAL	192,113	174,930
Side account	0	0
Net unfunded pension actuarial accrued liability	1,321,942	1,207,970
Combined valuation payroll	1,115,882	1,230,478
Net pension UAL as a percentage of payroll	118%	98%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(11.03%)	(9.59%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($152)	$5,975
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$82,568	$14,491
Tier 2 General Service	12.54%	105,541	13,235	12.26%	102,764	12,599
Total General Service		**105,541**	**13,235**		**185,332**	**27,090**
Tier 1 Police & Fire	22.14%	0	0	21.37%	166,131	35,502
Tier 2 Police & Fire	19.73%	169,351	33,413	18.95%	165,558	31,373
Total Police & Fire		**169,351**	**33,413**		**331,689**	**66,875**
Total		**$274,892**	**$46,648**		**$517,021**	**$93,965**
Employer normal cost rate						
General Service			**12.54%**			**14.62%**
Police & Fire			**19.73%**			**20.16%**
Aggregate (Default)			**16.97%**			**18.17%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,121,287)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(8.31%)
B. Actual employer payroll	580,348
C. Payment to transition liability/(surplus)	(48,227)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(8.31%)
B. Actual employer payroll	520,388
C. Payment to transition liability/(surplus)	(43,244)
4. Supplemental payment to transition liability	0
5. Interest	(77,236)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,107,052)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,107,052)	(1,121,287)
2. Combined valuation payroll	1,115,882	1,230,478
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(11.03%)**	**(9.59%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,115,882	1,230,478
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Wood Village/2185
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Wood Village/2185

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Wood Village -- #2185

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Wood Village to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Wood Village.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Wood Village

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.82%	15.82%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.81%	10.81%	10.81%	10.81%	10.81%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.72%)	(1.72%)	(1.72%)	(1.72%)	(1.72%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.79%**	**24.79%**	**29.63%**	**17.46%**	**22.19%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.28%**	**25.28%**	**30.12%**	**17.88%**	**22.61%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Wood Village

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$2,045,553	$1,568,058
Allocated pre-SLGRP pooled liability/(surplus)	(143,546)	(134,590)
Transition liability/(surplus)	(146,654)	(153,106)
Allocated pooled OPSRP UAL	163,352	116,396
Side account	0	0
Net unfunded pension actuarial accrued liability	1,918,705	1,396,758
Combined valuation payroll	948,828	818,748
Net pension UAL as a percentage of payroll	202%	171%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(1.72%)	(1.97%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($129)	$3,976
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$230,540	$40,298	17.55%	$222,346	$39,022
Tier 2 General Service	12.54%	116,439	14,601	12.26%	110,501	13,547
Total General Service		**346,979**	**54,899**		**332,847**	**52,569**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$346,979**	**$54,899**		**$332,847**	**$52,569**
Employer normal cost rate						
General Service			**15.82%**			**15.79%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.82%**			**15.79%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($153,106)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.90%)
B. Actual employer payroll	411,847
C. Payment to transition liability/(surplus)	(7,825)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.90%)
B. Actual employer payroll	466,257
C. Payment to transition liability/(surplus)	(8,859)
4. Supplemental payment to transition liability	0
5. Interest	(10,232)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($146,654)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(146,654)	(153,106)
2. Combined valuation payroll	948,828	818,748
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.72%)**	**(1.97%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	**Continuing**	**Total**
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	948,828	818,748
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Woodburn/2303
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Woodburn/2303

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Woodburn -- #2303

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Woodburn to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Woodburn.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Woodburn

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.59%	14.39%	20.42%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.27%)	(2.27%)	(2.27%)	(2.27%)	(2.27%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.87%**	**22.67%**	**28.70%**	**16.77%**	**21.50%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.36%**	**23.16%**	**29.19%**	**17.19%**	**21.92%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Woodburn

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$17,082,949	$16,379,622
Allocated pre-SLGRP pooled liability/(surplus)	(1,198,791)	(1,405,900)
Transition liability/(surplus)	(1,618,913)	(1,657,206)
Allocated pooled OPSRP UAL	1,364,198	1,215,854
Side account	0	0
Net unfunded pension actuarial accrued liability	15,629,443	14,532,370
Combined valuation payroll	7,923,911	8,552,481
Net pension UAL as a percentage of payroll	197%	170%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(2.27%)	(2.04%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,079)	$41,528
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$879,587	$153,752	17.55%	$1,320,797	$231,800
Tier 2 General Service	12.54%	1,469,485	184,273	12.26%	1,401,431	171,815
Total General Service		**2,349,072**	**338,025**		**2,722,228**	**403,615**
Tier 1 Police & Fire	22.14%	386,364	85,541	21.37%	495,550	105,899
Tier 2 Police & Fire	19.73%	957,830	188,980	18.95%	1,084,989	205,605
Total Police & Fire		**1,344,194**	**274,521**		**1,580,539**	**311,504**
Total		**$3,693,266**	**$612,546**		**$4,302,767**	**$715,119**
Employer normal cost rate						
General Service			**14.39%**			**14.83%**
Police & Fire			**20.42%**			**19.71%**
Aggregate (Default)			**16.59%**			**16.62%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,657,206)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.84%)
B. Actual employer payroll	4,111,131
C. Payment to transition liability/(surplus)	(75,645)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.84%)
B. Actual employer payroll	4,108,467
C. Payment to transition liability/(surplus)	(75,595)
4. Supplemental payment to transition liability	0
5. Interest	(112,947)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,618,913)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,618,913)	(1,657,206)
2. Combined valuation payroll	7,923,911	8,552,481
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(2.27%)**	**(2.04%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	7,923,911	8,552,481
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Yachats/2300
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
City of Yachats/2300

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Yachats/2300

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Yachats -- #2300

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Yachats to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Yachats.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Yachats

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.80%	15.80%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(7.10%)	(7.10%)	(7.10%)	(7.10%)	(7.10%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**20.93%**	**20.93%**	**25.79%**	**13.62%**	**18.35%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**21.42%**	**21.42%**	**26.28%**	**14.04%**	**18.77%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Yachats

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$940,036	$995,203
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(278,391)	(287,273)
Allocated pooled OPSRP UAL	75,069	73,874
Side account	0	0
Net unfunded pension actuarial accrued liability	736,714	781,804
Combined valuation payroll	436,035	519,637
Net pension UAL as a percentage of payroll	169%	150%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(7.10%)	(5.82%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($59)	$2,523
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$144,078	$25,185	17.55%	$148,514	$26,064
Tier 2 General Service	12.54%	74,031	9,283	12.26%	94,134	11,541
Total General Service		**218,109**	**34,468**		**242,648**	**37,605**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$218,109**	**$34,468**		**$242,648**	**$37,605**
Employer normal cost rate						
General Service			**15.80%**			**15.50%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.80%**			**15.50%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($287,273)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.33%)
B. Actual employer payroll	250,281
C. Payment to transition liability/(surplus)	(13,340)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.33%)
B. Actual employer payroll	280,754
C. Payment to transition liability/(surplus)	(14,965)
4. Supplemental payment to transition liability	0
5. Interest	(19,423)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($278,391)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(278,391)	(287,273)
2. Combined valuation payroll	436,035	519,637
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(7.10%)**	**(5.82%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	436,035	519,637
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Yamhill/2214
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
City of Yamhill/2214

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Yamhill -- #2214

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Yamhill to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Yamhill.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Yamhill

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.23%	13.87%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.40%)	(5.40%)	(5.40%)	(5.40%)	(5.40%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.06%**	**20.70%**	**26.56%**	**15.32%**	**20.05%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.55%**	**21.19%**	**27.05%**	**15.74%**	**20.47%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Yamhill

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$958,922	$797,500
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(215,959)	(231,666)
Allocated pooled OPSRP UAL	76,577	59,198
Side account	0	0
Net unfunded pension actuarial accrued liability	819,540	625,032
Combined valuation payroll	444,795	416,408
Net pension UAL as a percentage of payroll	184%	150%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.40%)	(5.85%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($61)	$2,022
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$44,086	$7,706	17.55%	$43,273	$7,594
Tier 2 General Service	12.54%	119,451	14,979	12.26%	120,035	14,716
Total General Service		**163,537**	**22,685**		**163,308**	**22,310**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	110,277	21,758	18.95%	107,064	20,289
Total Police & Fire		**110,277**	**21,758**		**107,064**	**20,289**
Total		**$273,814**	**$44,443**		**$270,372**	**$42,599**
Employer normal cost rate						
General Service			**13.87%**			**13.66%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**16.23%**			**15.76%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($231,666)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(7.25%)
B. Actual employer payroll	205,815
C. Payment to transition liability/(surplus)	(14,922)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(7.25%)
B. Actual employer payroll	218,651
C. Payment to transition liability/(surplus)	(15,852)
4. Supplemental payment to transition liability	0
5. Interest	(15,067)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($215,959)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(215,959)	(231,666)
2. Combined valuation payroll	444,795	416,408
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(5.40%)**	**(5.85%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	444,795	416,408
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

City of Yoncalla/2307
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
City of Yoncalla/2307

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Yoncalla -- #2307

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for City of Yoncalla to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Yoncalla.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for City of Yoncalla

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.31%)	(0.31%)	(0.31%)	(0.31%)	(0.31%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.78%**	**22.78%**	**30.90%**	**18.73%**	**23.46%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.27%**	**23.27%**	**31.39%**	**19.15%**	**23.88%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Yoncalla

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$471,414	$333,507
Allocated pre-SLGRP pooled liability/(surplus)	(33,081)	(28,626)
Transition liability/(surplus)	(6,174)	(6,463)
Allocated pooled OPSRP UAL	37,646	24,756
Side account	0	0
Net unfunded pension actuarial accrued liability	469,805	323,174
Combined valuation payroll	218,665	174,138
Net pension UAL as a percentage of payroll	215%	186%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.31%)	(0.39%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($30)	$846
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	84,416	10,586	12.26%	82,621	10,129
Total General Service		**84,416**	**10,586**		**82,621**	**10,129**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$84,416**	**$10,586**		**$82,621**	**$10,129**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($6,463)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.38%)
B. Actual employer payroll	83,766
C. Payment to transition liability/(surplus)	(318)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.38%)
B. Actual employer payroll	105,678
C. Payment to transition liability/(surplus)	(402)
4. Supplemental payment to transition liability	0
5. Interest	(431)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($6,174)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(6,174)	(6,463)
2. Combined valuation payroll	218,665	174,138
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.31%)**	**(0.39%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	218,665	174,138
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Clackamas Community College/2908
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
Clackamas Community College/2908

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Clackamas Community College/2908

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clackamas Community College -- #2908

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Clackamas Community College to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clackamas Community College.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Clackamas Community College

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.59%	14.59%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	1.74%	1.74%	1.74%	1.74%	1.74%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(9.51%)	(9.51%)	(9.51%)	(9.51%)	(9.51%)
Net pension contribution rate	**19.05%**	**19.05%**	**25.12%**	**12.95%**	**17.68%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**19.54%**	**19.54%**	**25.61%**	**13.37%**	**18.10%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clackamas Community College

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$60,100,192	$52,146,857
Allocated pre-SLGRP pooled liability/(surplus)	4,365,142	4,556,496
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	4,799,438	3,870,846
Side account	23,838,318	24,849,805
Net unfunded pension actuarial accrued liability	45,426,454	35,724,394
Combined valuation payroll	27,877,421	27,228,041
Net pension UAL as a percentage of payroll	163%	131%
Pre-SLGRP pooled rate	1.74%	1.76%
Transition rate	0.00%	0.00%
Side account rate relief	(9.51%)	(9.60%)
Allocated pooled RHIA UAL	($3,796)	$132,210
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$75,360,418	$13,173,001	17.55%	$82,957,159	$14,558,981
Tier 2 General Service	12.54%	105,835,897	13,271,821	12.26%	109,963,960	13,481,581
Total General Service		**181,196,315**	**26,444,822**		**192,921,119**	**28,040,562**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$181,196,315**	**$26,444,822**		**$192,921,119**	**$28,040,562**
Employer normal cost rate						
General Service			**14.59%**			**14.53%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.59%**			**14.53%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	27,877,421	27,228,041
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$24,849,805**	**$24,849,805**
2. Deposits during 2016		N/A	
3. Administrative expenses		(2,000)	(2,000)
4. Amount transferred to employer reserves during 2016		(2,710,238)	(2,710,238)
5. Side account earnings during 2016		1,700,751	1,700,751
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$23,838,318**	**$23,838,318**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$12,599,705	$13,130,618
Side Account 2	11,238,613	11,719,187
Side Account 3	0	0
Total	**$23,838,318**	**$24,849,805**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$23,838,318	$24,849,805
2. Combined valuation payroll	27,877,421	27,228,041
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(9.51%)	(9.60%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Clackamas County Fire District/2745
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Clackamas County Fire District/2745

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clackamas County Fire District -- #2745

November 2017

Secondary Employers

2164	Milwaukie Central Dispatch
2517	Clackamas Fire District #1
2523	Oak Lodge Fire Department
2537	Clackamas Fire Protection District #71
2546	Happy Valley Fire District
2548	Multnomah Rural Fire Protection District #12
2574	Clackamas County Rural Fire Protection District #54
2583	Beavercreek Fire District
2591	Clackamas County Rural Fire Protection District #68

CONTENTS

Executive Summary

Milliman has prepared this report for Clackamas County Fire District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clackamas County Fire District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Clackamas County Fire District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.46%	13.67%	20.99%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(3.51%)	(3.51%)	(3.51%)	(3.51%)	(3.51%)
Net pension contribution rate	**29.18%**	**22.39%**	**29.71%**	**17.21%**	**21.94%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**29.67%**	**22.88%**	**30.20%**	**17.63%**	**22.36%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clackamas County Fire District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$59,818,036	$50,514,744
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	4,776,906	3,749,694
Side account	8,753,634	9,371,605
Net unfunded pension actuarial accrued liability	55,841,308	44,892,833
Combined valuation payroll	27,746,543	26,375,847
Net pension UAL as a percentage of payroll	201%	170%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	0.00%	0.00%
Side account rate relief	(3.51%)	(3.74%)
Allocated pooled RHIA UAL	($3,778)	$128,072
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$215,747	$37,713	17.55%	$73,753	$12,944
Tier 2 General Service	12.54%	723,475	90,724	12.26%	906,022	111,078
Total General Service		**939,222**	**128,437**		**979,775**	**124,022**
Tier 1 Police & Fire	22.14%	6,283,141	1,391,087	21.37%	7,186,997	1,535,861
Tier 2 Police & Fire	19.73%	5,718,111	1,128,183	18.95%	5,483,409	1,039,106
Total Police & Fire		**12,001,252**	**2,519,270**		**12,670,406**	**2,574,967**
Total		**$12,940,474**	**$2,647,707**		**$13,650,181**	**$2,698,989**
Employer normal cost rate						
General Service			**13.67%**			**12.66%**
Police & Fire			**20.99%**			**20.32%**
Aggregate (Default)			**20.46%**			**19.77%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	27,746,543	26,375,847
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$9,371,605**	**$9,371,605**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(1,247,408)	(1,247,408)
5. Side account earnings during 2016		630,437	630,437
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$8,753,634**	**$8,753,634**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$8,753,634	$9,371,605
Side Account 2	0	0
Side Account 3	0	0
Total	**$8,753,634**	**$9,371,605**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$8,753,634	$9,371,605
2. Combined valuation payroll	27,746,543	26,375,847
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(3.51%)	(3.74%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Clackamas River Water/2761
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Clackamas River Water/2761

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clackamas River Water -- #2761

November 2017

Secondary Employers

2634 Clairmont Water

CONTENTS

Executive Summary

Milliman has prepared this report for Clackamas River Water to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clackamas River Water.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Clackamas River Water

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.58%	13.58%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	2.74%	2.74%	2.74%	2.74%	2.74%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.87%**	**26.87%**	**33.95%**	**21.78%**	**26.51%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.36%**	**27.36%**	**34.44%**	**22.20%**	**26.93%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clackamas River Water

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$6,595,181	$5,027,024
Allocated pre-SLGRP pooled liability/(surplus)	(462,815)	(431,481)
Transition liability/(surplus)	754,412	786,607
Allocated pooled OPSRP UAL	526,673	373,154
Side account	0	0
Net unfunded pension actuarial accrued liability	7,413,451	5,755,304
Combined valuation payroll	3,059,169	2,624,818
Net pension UAL as a percentage of payroll	242%	219%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	2.74%	3.15%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($417)	$12,745
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$344,860	$60,282	17.55%	$405,184	$71,110
Tier 2 General Service	12.54%	1,299,573	162,966	12.26%	1,133,192	138,929
Total General Service		**1,644,433**	**223,248**		**1,538,376**	**210,039**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,644,433**	**$223,248**		**$1,538,376**	**$210,039**
Employer normal cost rate						
General Service			**13.58%**			**13.65%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**13.58%**			**13.65%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$786,607
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	2.78%
B. Actual employer payroll	1,492,738
C. Payment to transition liability/(surplus)	41,498
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	2.78%
B. Actual employer payroll	1,558,629
C. Payment to transition liability/(surplus)	43,330
4. Supplemental payment to transition liability	0
5. Interest	52,633
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$754,412**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	754,412	786,607
2. Combined valuation payroll	3,059,169	2,624,818
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**2.74%**	**3.15%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	3,059,169	2,624,818
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Clackamas Vector Control/2538
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Clackamas Vector Control/2538

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clackamas Vector Control -- #2538

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Clackamas Vector Control to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clackamas Vector Control.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Clackamas Vector Control

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	2.87%	2.87%	2.87%	2.87%	2.87%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.38%**	**28.26%**	**34.08%**	**21.91%**	**26.64%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**29.87%**	**28.75%**	**34.57%**	**22.33%**	**27.06%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clackamas Vector Control

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$774,978	$355,509
Allocated pre-SLGRP pooled liability/(surplus)	(54,384)	(30,514)
Transition liability/(surplus)	92,800	96,858
Allocated pooled OPSRP UAL	61,888	26,389
Side account	0	0
Net unfunded pension actuarial accrued liability	875,282	448,242
Combined valuation payroll	359,473	185,626
Net pension UAL as a percentage of payroll	243%	241%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	2.87%	5.49%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($49)	$901
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$96,858
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	3.78%
B. Actual employer payroll	116,474
C. Payment to transition liability/(surplus)	4,403
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	3.78%
B. Actual employer payroll	162,161
C. Payment to transition liability/(surplus)	6,129
4. Supplemental payment to transition liability	0
5. Interest	6,474
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$92,800**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	92,800	96,858
2. Combined valuation payroll	359,473	185,626
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**2.87%**	**5.49%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	359,473	185,626
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Clatskanie Library/2707
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Clatskanie Library/2707

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clatskanie Library -- #2707

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Clatskanie Library to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clatskanie Library.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Clatskanie Library

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.05%	16.05%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.44%	0.44%	0.44%	0.44%	0.44%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.04%**	**27.04%**	**31.65%**	**19.48%**	**24.21%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.53%**	**27.53%**	**32.14%**	**19.90%**	**24.63%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

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	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$195,816	$155,240
Allocated pre-SLGRP pooled liability/(surplus)	(13,741)	(13,325)
Transition liability/(surplus)	3,631	3,809
Allocated pooled OPSRP UAL	15,637	11,523
Side account	0	0
Net unfunded pension actuarial accrued liability	201,343	157,247
Combined valuation payroll	90,829	81,057
Net pension UAL as a percentage of payroll	222%	194%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.44%	0.49%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($12)	$394
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$49,503	$8,653	17.55%	$52,741	$9,256
Tier 2 General Service	12.54%	20,181	2,531	12.26%	18,788	2,303
Total General Service		**69,684**	**11,184**		**71,529**	**11,559**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$69,684**	**$11,184**		**$71,529**	**$11,559**
Employer normal cost rate						
General Service			**16.05%**			**16.16%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**16.05%**			**16.16%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$3,809
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.50%
B. Actual employer payroll	40,658
C. Payment to transition liability/(surplus)	203
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.50%
B. Actual employer payroll	45,652
C. Payment to transition liability/(surplus)	228
4. Supplemental payment to transition liability	0
5. Interest	253
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$3,631**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	3,631	3,809
2. Combined valuation payroll	90,829	81,057
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**0.44%**	**0.49%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	90,829	81,057
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Clatskanie PUD/2526
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
Clatskanie PUD/2526

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Clatskanie PUD/2526

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clatskanie PUD -- #2526

November 2017

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Executive Summary

Milliman has prepared this report for Clatskanie PUD to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clatskanie PUD.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Clatskanie PUD

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.70%	14.70%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	5.73%	5.73%	5.73%	5.73%	5.73%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**30.98%**	**30.98%**	**36.94%**	**24.77%**	**29.50%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**31.47%**	**31.47%**	**37.43%**	**25.19%**	**29.92%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clatskanie PUD

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$7,389,558	$6,481,691
Allocated pre-SLGRP pooled liability/(surplus)	(518,560)	(556,338)
Transition liability/(surplus)	1,767,782	1,837,087
Allocated pooled OPSRP UAL	590,110	481,134
Side account	0	0
Net unfunded pension actuarial accrued liability	9,228,890	8,243,574
Combined valuation payroll	3,427,640	3,384,360
Net pension UAL as a percentage of payroll	269%	244%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	5.73%	5.71%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($467)	$16,433
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$385,641	$67,410	17.55%	$376,007	$65,989
Tier 2 General Service	12.54%	496,438	62,253	12.26%	506,524	62,100
Total General Service		**882,079**	**129,663**		**882,531**	**128,089**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$882,079**	**$129,663**		**$882,531**	**$128,089**
Employer normal cost rate						
General Service			**14.70%**			**14.51%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.70%**			**14.51%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$1,837,087
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	5.94%
B. Actual employer payroll	1,597,188
C. Payment to transition liability/(surplus)	94,873
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	5.94%
B. Actual employer payroll	1,645,881
C. Payment to transition liability/(surplus)	97,766
4. Supplemental payment to transition liability	0
5. Interest	123,334
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$1,767,782**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	**December 31, 2015**
1. Total transition liability/(surplus)	1,767,782	1,837,087
2. Combined valuation payroll	3,427,640	3,384,360
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**5.73%**	**5.71%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	3,427,640	3,384,360
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Clatskanie Rural Fire Protection District/2588
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Clatskanie Rural Fire Protection District/2588

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clatskanie Rural Fire Protection District -- #2588

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Clatskanie Rural Fire Protection District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clatskanie Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Clatskanie Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	21.20%	14.84%	21.20%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.59%)	(4.59%)	(4.59%)	(4.59%)	(4.59%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.84%**	**22.48%**	**28.84%**	**16.13%**	**20.86%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**29.33%**	**22.97%**	**29.33%**	**16.55%**	**21.28%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clatskanie Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$2,034,282	$1,598,115
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(389,732)	(433,087)
Allocated pooled OPSRP UAL	162,452	118,628
Side account	0	0
Net unfunded pension actuarial accrued liability	1,807,002	1,283,656
Combined valuation payroll	943,600	834,442
Net pension UAL as a percentage of payroll	192%	154%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.59%)	(5.46%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($128)	$4,052
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	202,168	44,760	21.37%	219,851	46,982
Tier 2 Police & Fire	19.73%	129,018	25,455	18.95%	129,034	24,452
Total Police & Fire		**331,186**	**70,215**		**348,885**	**71,434**
Total		**$331,186**	**$70,215**		**$348,885**	**$71,434**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**21.20%**			**20.47%**
Aggregate (Default)			**21.20%**			**20.47%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($433,087)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(7.99%)
B. Actual employer payroll	443,894
C. Payment to transition liability/(surplus)	(35,467)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(7.99%)
B. Actual employer payroll	439,042
C. Payment to transition liability/(surplus)	(35,079)
4. Supplemental payment to transition liability	0
5. Interest	(27,191)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($389,732)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(389,732)	(433,087)
2. Combined valuation payroll	943,600	834,442
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(4.59%)**	**(5.46%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	943,600	834,442
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Clatsop Community College/2900
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
Clatsop Community College/2900

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Clatsop Community College/2900

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clatsop Community College -- #2900

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Clatsop Community College to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clatsop Community College.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Clatsop Community College

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.59%	14.59%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	1.74%	1.74%	1.74%	1.74%	1.74%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(12.17%)	(12.17%)	(12.17%)	(12.17%)	(12.17%)
Net pension contribution rate	**16.39%**	**16.39%**	**22.46%**	**10.29%**	**15.02%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**16.88%**	**16.88%**	**22.95%**	**10.71%**	**15.44%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clatsop Community College

	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$11,774,016	$10,611,299
Allocated pre-SLGRP pooled liability/(surplus)	855,160	927,196
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	940,241	787,674
Side account	5,977,376	6,153,574
Net unfunded pension actuarial accrued liability	7,592,041	6,172,595
Combined valuation payroll	5,461,367	5,540,600
Net pension UAL as a percentage of payroll	139%	111%
Pre-SLGRP pooled rate	1.74%	1.76%
Transition rate	0.00%	0.00%
Side account rate relief	(12.17%)	(11.69%)
Allocated pooled RHIA UAL	($744)	$26,903
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$75,360,418	$13,173,001	17.55%	$82,957,159	$14,558,981
Tier 2 General Service	12.54%	105,835,897	13,271,821	12.26%	109,963,960	13,481,581
Total General Service		**181,196,315**	**26,444,822**		**192,921,119**	**28,040,562**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$181,196,315**	**$26,444,822**		**$192,921,119**	**$28,040,562**
Employer normal cost rate						
General Service			**14.59%**			**14.53%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.59%**			**14.53%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	5,461,367	5,540,600
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$6,153,574**	**$6,153,574**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(598,838)	(598,838)
5. Side account earnings during 2016		423,640	423,640
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$5,977,376**	**$5,977,376**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$5,977,376	$6,153,574
Side Account 2	0	0
Side Account 3	0	0
Total	**$5,977,376**	**$6,153,574**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$5,977,376	$6,153,574
2. Combined valuation payroll	5,461,367	5,540,600
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(12.17%)	(11.69%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Clatsop County/2036
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Clatsop County/2036

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clatsop County -- #2036

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Clatsop County to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clatsop County.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Clatsop County

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.96%	15.28%	20.57%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(6.00%)	(6.00%)	(6.00%)	(6.00%)	(6.00%)
Net pension contribution rate	**21.51%**	**19.83%**	**25.12%**	**13.04%**	**17.77%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**22.00%**	**20.32%**	**25.61%**	**13.46%**	**18.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clatsop County

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$27,980,398	$22,666,319
Allocated pre-SLGRP pooled liability/(surplus)	(1,963,517)	(1,945,502)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	2,234,438	1,682,514
Side account	6,999,020	7,237,061
Net unfunded pension actuarial accrued liability	21,252,299	15,166,270
Combined valuation payroll	12,978,683	11,835,027
Net pension UAL as a percentage of payroll	164%	128%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.00%	0.00%
Side account rate relief	(6.00%)	(6.43%)
Allocated pooled RHIA UAL	($1,767)	$57,467
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$1,963,949	$343,298	17.55%	$1,996,360	$350,361
Tier 2 General Service	12.54%	1,579,534	198,074	12.26%	1,684,005	206,459
Total General Service		**3,543,483**	**541,372**		**3,680,365**	**556,820**
Tier 1 Police & Fire	22.14%	575,882	127,500	21.37%	555,839	118,783
Tier 2 Police & Fire	19.73%	1,068,902	210,894	18.95%	1,260,085	238,786
Total Police & Fire		**1,644,784**	**338,394**		**1,815,924**	**357,569**
Total		**$5,188,267**	**$879,766**		**$5,496,289**	**$914,389**
Employer normal cost rate						
General Service			**15.28%**			**15.13%**
Police & Fire			**20.57%**			**19.69%**
Aggregate (Default)			**16.96%**			**16.64%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	12,978,683	11,835,027
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$7,237,061**	**$7,237,061**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(733,976)	(733,976)
5. Side account earnings during 2016		496,934	496,934
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$6,999,020**	**$6,999,020**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$6,999,020	$7,237,061
Side Account 2	0	0
Side Account 3	0	0
Total	**$6,999,020**	**$7,237,061**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$6,999,020	$7,237,061
2. Combined valuation payroll	12,978,683	11,835,027
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(6.00%)	(6.43%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Clean Water Services/2617
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Clean Water Services/2617

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clean Water Services -- #2617

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Clean Water Services to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clean Water Services.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Clean Water Services

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.37%	15.37%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.19%)	(1.19%)	(1.19%)	(1.19%)	(1.19%)
Side account rate relief [2]	(4.87%)	(4.87%)	(4.87%)	(4.87%)	(4.87%)
Net pension contribution rate	**21.54%**	**21.54%**	**26.83%**	**14.66%**	**19.39%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**22.03%**	**22.03%**	**27.32%**	**15.08%**	**19.81%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clean Water Services

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$63,504,416	$52,917,528
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(3,151,222)	(3,306,688)
Allocated pooled OPSRP UAL	5,071,290	3,928,052
Side account	12,906,910	13,557,837
Net unfunded pension actuarial accrued liability	52,517,574	39,981,055
Combined valuation payroll	29,456,467	27,630,440
Net pension UAL as a percentage of payroll	178%	145%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.19%)	(1.26%)
Side account rate relief	(4.87%)	(5.16%)
Allocated pooled RHIA UAL	($4,011)	$134,164
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$7,869,729	$1,375,629	17.55%	$8,394,876	$1,473,301
Tier 2 General Service	12.54%	5,848,120	733,354	12.26%	5,720,774	701,367
Total General Service		**13,717,849**	**2,108,983**		**14,115,650**	**2,174,668**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$13,717,849**	**$2,108,983**		**$14,115,650**	**$2,174,668**
Employer normal cost rate						
General Service			**15.37%**			**15.41%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.37%**			**15.41%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($3,306,688)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.33%)
B. Actual employer payroll	13,078,792
C. Payment to transition liability/(surplus)	(173,948)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.33%)
B. Actual employer payroll	15,140,690
C. Payment to transition liability/(surplus)	(201,371)
4. Supplemental payment to transition liability	0
5. Interest	(219,853)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($3,151,222)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(3,151,222)	(3,306,688)
2. Combined valuation payroll	29,456,467	27,630,440
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.19%)**	**(1.26%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$13,557,837**	**$13,557,837**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(1,574,009)	(1,574,009)
5. Side account earnings during 2016		924,082	924,082
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$12,906,910**	**$12,906,910**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$12,906,910	$13,557,837
Side Account 2	0	0
Side Account 3	0	0
Total	**$12,906,910**	**$13,557,837**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$12,906,910	$13,557,837
2. Combined valuation payroll	29,456,467	27,630,440
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(4.87%)	(5.16%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Cloverdale Rural Fire Protection District/2681
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Cloverdale Rural Fire Protection District/2681

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Cloverdale Rural Fire Protection District -- #2681

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Cloverdale Rural Fire Protection District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Cloverdale Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Cloverdale Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	22.14%	14.84%	22.14%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	2.42%	2.42%	2.42%	2.42%	2.42%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**35.11%**	**27.81%**	**35.11%**	**21.46%**	**26.19%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**35.60%**	**28.30%**	**35.60%**	**21.88%**	**26.61%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Cloverdale Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$390,862	$256,392
Allocated pre-SLGRP pooled liability/(surplus)	(27,429)	(22,007)
Transition liability/(surplus)	39,413	42,015
Allocated pooled OPSRP UAL	31,213	19,032
Side account	0	0
Net unfunded pension actuarial accrued liability	434,059	295,432
Combined valuation payroll	181,301	133,873
Net pension UAL as a percentage of payroll	239%	221%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	2.42%	3.30%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($25)	$650
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

1 *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	87,394	19,349	21.37%	83,851	17,919
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**87,394**	**19,349**		**83,851**	**17,919**
Total		**$87,394**	**$19,349**		**$83,851**	**$17,919**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**22.14%**			**21.37%**
Aggregate (Default)			**22.14%**			**21.37%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$42,015
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	3.93%
B. Actual employer payroll	66,321
C. Payment to transition liability/(surplus)	2,606
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	3.93%
B. Actual employer payroll	69,840
C. Payment to transition liability/(surplus)	2,746
4. Supplemental payment to transition liability	0
5. Interest	2,750
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$39,413**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	39,413	42,015
2. Combined valuation payroll	181,301	133,873
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**2.42%**	**3.30%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	181,301	133,873
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Coburg Rural Fire Protection District/2801
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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November 2017
Coburg Rural Fire Protection District/2801

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Coburg Rural Fire Protection District -- #2801

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Coburg Rural Fire Protection District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Coburg Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Coburg Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	19.95%	14.84%	19.95%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.52%)	(6.52%)	(6.52%)	(6.52%)	(6.52%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.66%**	**20.55%**	**25.66%**	**14.20%**	**18.93%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.15%**	**21.04%**	**26.15%**	**14.62%**	**19.35%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Coburg Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$291,675	$257,206
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(79,386)	(82,902)
Allocated pooled OPSRP UAL	23,292	19,092
Side account	0	0
Net unfunded pension actuarial accrued liability	235,581	193,396
Combined valuation payroll	135,293	134,298
Net pension UAL as a percentage of payroll	174%	144%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.52%)	(6.50%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($18)	$652
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$499	$88
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**499**	**88**
Tier 1 Police & Fire	22.14%	8,112	1,796	21.37%	0	0
Tier 2 Police & Fire	19.73%	79,594	15,704	18.95%	83,315	15,788
Total Police & Fire		**87,706**	**17,500**		**83,315**	**15,788**
Total		**$87,706**	**$17,500**		**$83,814**	**$15,876**
Employer normal cost rate						
General Service			**14.84%**			**17.64%**
Police & Fire			**19.95%**			**18.95%**
Aggregate (Default)			**19.95%**			**18.94%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($82,902)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(7.01%)
B. Actual employer payroll	59,880
C. Payment to transition liability/(surplus)	(4,198)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(7.01%)
B. Actual employer payroll	69,290
C. Payment to transition liability/(surplus)	(4,857)
4. Supplemental payment to transition liability	0
5. Interest	(5,539)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($79,386)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(79,386)	(82,902)
2. Combined valuation payroll	135,293	134,298
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(6.52%)**	**(6.50%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	135,293	134,298
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Colton Fire Department/2649
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Colton Fire Department/2649

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Colton Fire Department -- #2649

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Colton Fire Department to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Colton Fire Department.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Colton Fire Department

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	22.14%	14.84%	22.14%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(17.32%)	(17.32%)	(17.32%)	(17.32%)	(17.32%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**17.05%**	**9.75%**	**17.05%**	**3.40%**	**8.13%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**17.54%**	**10.24%**	**17.54%**	**3.82%**	**8.55%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Colton Fire Department

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$69,878	$179,273
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(50,498)	(52,885)
Allocated pooled OPSRP UAL	5,580	13,307
Side account	0	0
Net unfunded pension actuarial accrued liability	24,960	139,695
Combined valuation payroll	32,413	93,606
Net pension UAL as a percentage of payroll	77%	149%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(17.32%)	(5.94%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4)	$455
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	32,413	7,176	21.37%	93,606	20,004
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**32,413**	**7,176**		**93,606**	**20,004**
Total		**$32,413**	**$7,176**		**$93,606**	**$20,004**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**22.14%**			**21.37%**
Aggregate (Default)			**22.14%**			**21.37%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($52,885)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(6.34%)
B. Actual employer payroll	44,958
C. Payment to transition liability/(surplus)	(2,850)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(6.34%)
B. Actual employer payroll	48,257
C. Payment to transition liability/(surplus)	(3,060)
4. Supplemental payment to transition liability	0
5. Interest	(3,523)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($50,498)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(50,498)	(52,885)
2. Combined valuation payroll	32,413	93,606
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(17.32%)**	**(5.94%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	32,413	93,606
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Columbia 911 Communications District/2671
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Columbia 911 Communications District/2671

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Columbia 911 Communications District -- #2671

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Columbia 911 Communications District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Columbia 911 Communications District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Columbia 911 Communications District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.07%	14.07%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.92%)	(0.92%)	(0.92%)	(0.92%)	(0.92%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.70%**	**23.70%**	**30.29%**	**18.12%**	**22.85%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.19%**	**24.19%**	**30.78%**	**18.54%**	**23.27%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Columbia 911 Communications District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$2,718,328	$2,426,265
Allocated pre-SLGRP pooled liability/(surplus)	(190,758)	(208,252)
Transition liability/(surplus)	(104,567)	(107,744)
Allocated pooled OPSRP UAL	217,078	180,101
Side account	0	0
Net unfunded pension actuarial accrued liability	2,640,081	2,290,370
Combined valuation payroll	1,260,894	1,266,854
Net pension UAL as a percentage of payroll	209%	181%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.92%)	(0.89%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($172)	$6,151
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$210,106	$36,727	17.55%	$260,697	$45,752
Tier 2 General Service	12.54%	468,588	58,761	12.26%	515,856	63,244
Total General Service		**678,694**	**95,488**		**776,553**	**108,996**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$678,694**	**$95,488**		**$776,553**	**$108,996**
Employer normal cost rate						
General Service			**14.07%**			**14.04%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.07%**			**14.04%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($107,744)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.84%)
B. Actual employer payroll	610,639
C. Payment to transition liability/(surplus)	(5,129)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.84%)
B. Actual employer payroll	635,980
C. Payment to transition liability/(surplus)	(5,343)
4. Supplemental payment to transition liability	0
5. Interest	(7,295)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($104,567)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(104,567)	(107,744)
2. Combined valuation payroll	1,260,894	1,266,854
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.92%)**	**(0.89%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,260,894	1,266,854
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Columbia County/2017
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Columbia County/2017

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

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ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Columbia County -- #2017

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Columbia County to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Columbia County.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Columbia County

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.52%	15.14%	20.44%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.24%)	(4.24%)	(4.24%)	(4.24%)	(4.24%)
Side account rate relief [2]	(3.44%)	(3.44%)	(3.44%)	(3.44%)	(3.44%)
Net pension contribution rate	**21.07%**	**19.69%**	**24.99%**	**13.04%**	**17.77%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**21.56%**	**20.18%**	**25.48%**	**13.46%**	**18.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Columbia County

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$20,541,652	$16,171,276
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(3,629,831)	(3,790,607)
Allocated pooled OPSRP UAL	1,640,400	1,200,389
Side account	2,945,740	3,082,486
Net unfunded pension actuarial accrued liability	15,606,481	10,498,572
Combined valuation payroll	9,528,227	8,443,695
Net pension UAL as a percentage of payroll	164%	124%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.24%)	(4.72%)
Side account rate relief	(3.44%)	(3.84%)
Allocated pooled RHIA UAL	($1,297)	$41,000
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$1,574,531	$275,228	17.55%	$1,542,158	$270,649
Tier 2 General Service	12.54%	1,420,655	178,150	12.26%	1,479,614	181,401
Total General Service		**2,995,186**	**453,378**		**3,021,772**	**452,050**
Tier 1 Police & Fire	22.14%	311,175	68,894	21.37%	285,728	61,060
Tier 2 Police & Fire	19.73%	750,715	148,116	18.95%	707,685	134,106
Total Police & Fire		**1,061,890**	**217,010**		**993,413**	**195,166**
Total		**$4,057,076**	**$670,388**		**$4,015,185**	**$647,216**
Employer normal cost rate						
General Service			**15.14%**			**14.96%**
Police & Fire			**20.44%**			**19.65%**
Aggregate (Default)			**16.52%**			**16.12%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($3,790,607)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(4.46%)
B. Actual employer payroll	4,366,883
C. Payment to transition liability/(surplus)	(194,763)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(4.46%)
B. Actual employer payroll	4,916,087
C. Payment to transition liability/(surplus)	(219,257)
4. Supplemental payment to transition liability	0
5. Interest	(253,244)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($3,629,831)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(3,629,831)	(3,790,607)
2. Combined valuation payroll	9,528,227	8,443,695
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(4.24%)**	**(4.72%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$3,082,486**	**$3,082,486**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(346,347)	(346,347)
5. Side account earnings during 2016		210,601	210,601
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$2,945,740**	**$2,945,740**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$2,945,740	$3,082,486
Side Account 2	0	0
Side Account 3	0	0
Total	**$2,945,740**	**$3,082,486**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$2,945,740	$3,082,486
2. Combined valuation payroll	9,528,227	8,443,695
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(3.44%)	(3.84%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Columbia Drainage Vector Control District/2687
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Columbia Drainage Vector Control District/2687

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Columbia Drainage Vector Control District -- #2687

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Columbia Drainage Vector Control District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Columbia Drainage Vector Control District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Columbia Drainage Vector Control District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	13.50%	13.50%	13.50%	13.50%	13.50%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**36.59%**	**36.59%**	**44.71%**	**32.54%**	**37.27%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**37.08%**	**37.08%**	**45.20%**	**32.96%**	**37.69%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Columbia Drainage Vector Control District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$305,545	$259,880
Allocated pre-SLGRP pooled liability/(surplus)	(21,442)	(22,306)
Transition liability/(surplus)	172,027	173,430
Allocated pooled OPSRP UAL	24,400	19,291
Side account	0	0
Net unfunded pension actuarial accrued liability	480,530	430,295
Combined valuation payroll	141,727	135,694
Net pension UAL as a percentage of payroll	339%	317%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	13.50%	13.45%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($19)	$659
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	72,179	9,051	12.26%	70,970	8,701
Total General Service		**72,179**	**9,051**		**70,970**	**8,701**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$72,179**	**$9,051**		**$70,970**	**$8,701**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$173,430
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	9.94%
B. Actual employer payroll	65,284
C. Payment to transition liability/(surplus)	6,489
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	9.94%
B. Actual employer payroll	69,572
C. Payment to transition liability/(surplus)	6,916
4. Supplemental payment to transition liability	0
5. Interest	12,002
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$172,027**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	172,027	173,430
2. Combined valuation payroll	141,727	135,694
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**13.50%**	**13.45%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	141,727	135,694
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Columbia Gorge Community College/2996
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

November 2017
Columbia Gorge Community College/2996

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Columbia Gorge Community College/2996

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Columbia Gorge Community College -- #2996

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Columbia Gorge Community College to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Columbia Gorge Community College.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Columbia Gorge Community College

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.59%	14.59%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	1.74%	1.74%	1.74%	1.74%	1.74%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(7.46%)	(7.46%)	(7.46%)	(7.46%)	(7.46%)
Net pension contribution rate	**21.10%**	**21.10%**	**27.17%**	**15.00%**	**19.73%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**21.59%**	**21.59%**	**27.66%**	**15.42%**	**20.15%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Columbia Gorge Community College

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$10,197,391	$8,861,289
Allocated pre-SLGRP pooled liability/(surplus)	740,648	774,283
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	814,336	657,771
Side account	3,171,653	3,242,578
Net unfunded pension actuarial accrued liability	8,580,722	7,050,765
Combined valuation payroll	4,730,051	4,626,847
Net pension UAL as a percentage of payroll	181%	152%
Pre-SLGRP pooled rate	1.74%	1.76%
Transition rate	0.00%	0.00%
Side account rate relief	(7.46%)	(7.37%)
Allocated pooled RHIA UAL	($644)	$22,466
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$75,360,418	$13,173,001	17.55%	$82,957,159	$14,558,981
Tier 2 General Service	12.54%	105,835,897	13,271,821	12.26%	109,963,960	13,481,581
Total General Service		**181,196,315**	**26,444,822**		**192,921,119**	**28,040,562**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$181,196,315**	**$26,444,822**		**$192,921,119**	**$28,040,562**
Employer normal cost rate						
General Service			**14.59%**			**14.53%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.59%**			**14.53%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	4,730,051	4,626,847
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**	**$3,242,578**	**$3,242,578**
2. Deposits during 2016		N/A	
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2016		(295,383)	(295,383)
5. Side account earnings during 2016		225,458	225,458
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***		**$3,171,653**	**$3,171,653**

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	$3,171,653	$3,242,578
Side Account 2	0	0
Side Account 3	0	0
Total	**$3,171,653**	**$3,242,578**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$3,171,653	$3,242,578
2. Combined valuation payroll	4,730,051	4,626,847
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(7.46%)	(7.37%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Columbia River Fire & Rescue/2528
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Columbia River Fire & Rescue/2528

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Columbia River Fire & Rescue -- #2528

November 2017

Secondary Employers

2577 Rainier Fire Department

CONTENTS

Executive Summary

Milliman has prepared this report for Columbia River Fire & Rescue to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Columbia River Fire & Rescue.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Columbia River Fire & Rescue

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.29%	12.54%	20.58%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(6.68%)	(6.68%)	(6.68%)	(6.68%)	(6.68%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.16%**	**16.41%**	**24.45%**	**12.36%**	**17.09%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.65%**	**16.90%**	**24.94%**	**12.78%**	**17.51%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Columbia River Fire & Rescue

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$8,859,730	$7,716,473
Allocated pre-SLGRP pooled liability/(surplus)	(621,729)	(662,322)
Transition liability/(surplus)	(2,470,642)	(2,555,094)
Allocated pooled OPSRP UAL	707,514	572,791
Side account	0	0
Net unfunded pension actuarial accrued liability	6,474,873	5,071,848
Combined valuation payroll	4,109,578	4,029,091
Net pension UAL as a percentage of payroll	158%	126%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(6.68%)	(6.67%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($560)	$19,564
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	80,949	10,151	12.26%	76,061	9,325
Total General Service		**80,949**	**10,151**		**76,061**	**9,325**
Tier 1 Police & Fire	22.14%	757,664	167,747	21.37%	895,003	191,262
Tier 2 Police & Fire	19.73%	1,382,304	272,729	18.95%	1,362,552	258,204
Total Police & Fire		**2,139,968**	**440,476**		**2,257,555**	**449,466**
Total		**$2,220,917**	**$450,627**		**$2,333,616**	**$458,791**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.58%**			**19.91%**
Aggregate (Default)			**20.29%**			**19.66%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($2,555,094)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(6.42%)
B. Actual employer payroll	2,016,593
C. Payment to transition liability/(surplus)	(129,465)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(6.42%)
B. Actual employer payroll	1,983,749
C. Payment to transition liability/(surplus)	(127,357)
4. Supplemental payment to transition liability	0
5. Interest	(172,370)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,470,642)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(2,470,642)	(2,555,094)
2. Combined valuation payroll	4,109,578	4,029,091
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(6.68%)**	**(6.67%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	**Continuing**	**Total**
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	4,109,578	4,029,091
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Community Services Consortium/2612
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
Community Services Consortium/2612

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Community Services Consortium/2612

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Community Services Consortium -- #2612

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Community Services Consortium to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Community Services Consortium.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Community Services Consortium

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.07%	14.07%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.70%)	(1.70%)	(1.70%)	(1.70%)	(1.70%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.92%**	**22.92%**	**29.51%**	**17.34%**	**22.07%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.41%**	**23.41%**	**30.00%**	**17.76%**	**22.49%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Community Services Consortium

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$8,513,788	$7,074,199
Allocated pre-SLGRP pooled liability/(surplus)	(597,453)	(607,195)
Transition liability/(surplus)	(605,158)	(617,278)
Allocated pooled OPSRP UAL	679,888	525,116
Side account	0	0
Net unfunded pension actuarial accrued liability	7,991,065	6,374,842
Combined valuation payroll	3,949,113	3,693,733
Net pension UAL as a percentage of payroll	202%	173%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(1.70%)	(1.76%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($538)	$17,936
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$425,397	$74,359	17.55%	$455,356	$79,915
Tier 2 General Service	12.54%	946,951	118,748	12.26%	891,865	109,343
Total General Service		**1,372,348**	**193,107**		**1,347,221**	**189,258**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,372,348**	**$193,107**		**$1,347,221**	**$189,258**
Employer normal cost rate						
General Service			**14.07%**			**14.05%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.07%**			**14.05%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($617,278)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.45%)
B. Actual employer payroll	1,848,756
C. Payment to transition liability/(surplus)	(26,807)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.45%)
B. Actual employer payroll	1,898,823
C. Payment to transition liability/(surplus)	(27,533)
4. Supplemental payment to transition liability	0
5. Interest	(42,220)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($605,158)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(605,158)	(617,278)
2. Combined valuation payroll	3,949,113	3,693,733
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.70%)**	**(1.76%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	3,949,113	3,693,733
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Coos County Airport District/2860
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Coos County Airport District/2860

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Coos County Airport District -- #2860

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Coos County Airport District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Coos County Airport District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Coos County Airport District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.00%)	(6.00%)	(6.00%)	(6.00%)	(6.00%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.77%**	**18.77%**	**26.89%**	**14.72%**	**19.45%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**19.26%**	**19.26%**	**27.38%**	**15.14%**	**19.87%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Coos County Airport District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$1,412,793	$1,350,896
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(353,829)	(369,355)
Allocated pooled OPSRP UAL	112,822	100,277
Side account	0	0
Net unfunded pension actuarial accrued liability	1,171,786	1,081,818
Combined valuation payroll	655,323	705,359
Net pension UAL as a percentage of payroll	179%	153%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.00%)	(5.51%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($89)	$3,425
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	145,732	18,275	12.26%	139,381	17,088
Total General Service		**145,732**	**18,275**		**139,381**	**17,088**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$145,732**	**$18,275**		**$139,381**	**$17,088**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($369,355)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(5.83%)
B. Actual employer payroll	342,410
C. Payment to transition liability/(surplus)	(19,963)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(5.83%)
B. Actual employer payroll	347,335
C. Payment to transition liability/(surplus)	(20,249)
4. Supplemental payment to transition liability	0
5. Interest	(24,686)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($353,829)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(353,829)	(369,355)
2. Combined valuation payroll	655,323	705,359
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(6.00%)**	**(5.51%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	655,323	705,359
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Coos County/2018
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Coos County/2018

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Coos County -- #2018

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Coos County to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Coos County.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Coos County

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.75%	15.06%	20.74%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	0.89%	0.89%	0.89%	0.89%	0.89%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.87%**	**28.18%**	**33.86%**	**21.61%**	**26.34%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**30.36%**	**28.67%**	**34.35%**	**22.03%**	**26.76%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Coos County

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$32,487,064	$28,148,898
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	1,209,718	1,278,304
Allocated pooled OPSRP UAL	2,594,329	2,089,484
Side account	0	0
Net unfunded pension actuarial accrued liability	36,291,111	31,516,686
Combined valuation payroll	15,069,096	14,697,709
Net pension UAL as a percentage of payroll	241%	214%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	0.89%	0.92%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,052)	$71,367
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$2,550,304	$445,793	17.55%	$2,737,912	$480,504
Tier 2 General Service	12.54%	2,450,737	307,322	12.26%	2,425,055	297,312
Total General Service		**5,001,041**	**753,115**		**5,162,967**	**777,816**
Tier 1 Police & Fire	22.14%	890,742	197,210	21.37%	929,409	198,615
Tier 2 Police & Fire	19.73%	1,230,522	242,782	18.95%	1,203,348	228,034
Total Police & Fire		**2,121,264**	**439,992**		**2,132,757**	**426,649**
Total		**$7,122,305**	**$1,193,107**		**$7,295,724**	**$1,204,465**
Employer normal cost rate						
General Service			**15.06%**			**15.07%**
Police & Fire			**20.74%**			**20.00%**
Aggregate (Default)			**16.75%**			**16.51%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$1,278,304
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	1.01%
B. Actual employer payroll	7,481,604
C. Payment to transition liability/(surplus)	75,564
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	1.01%
B. Actual employer payroll	7,665,434
C. Payment to transition liability/(surplus)	77,421
4. Supplemental payment to transition liability	0
5. Interest	84,399
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$1,209,718**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	1,209,718	1,278,304
2. Combined valuation payroll	15,069,096	14,697,709
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**0.89%**	**0.92%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	15,069,096	14,697,709
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Corbett Water District/2603
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
Corbett Water District/2603

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Corbett Water District/2603

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Corbett Water District -- #2603

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Corbett Water District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Corbett Water District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Corbett Water District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.51%**	**25.39%**	**31.21%**	**19.04%**	**23.77%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**27.00%**	**25.88%**	**31.70%**	**19.46%**	**24.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	**70% to 130%**	**Under 60% or Over 140%**
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Corbett Water District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$421,930	$414,160
Allocated pre-SLGRP pooled liability/(surplus)	(29,609)	(35,548)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	33,694	30,743
Side account	0	0
Net unfunded pension actuarial accrued liability	426,015	409,355
Combined valuation payroll	195,712	216,250
Net pension UAL as a percentage of payroll	218%	189%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	0.00%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($27)	$1,050
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2016**	**December 31, 2015**
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2016**	**December 31, 2015**
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	$0
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	**December 31, 2015**
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	195,712	216,250
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	195,712	216,250
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Council of Governments/2545
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
Council of Governments/2545

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Council of Governments/2545

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee

Scott Preppernau

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Council of Governments -- #2545

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Council of Governments to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Council of Governments.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Council of Governments

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.78%	14.78%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.01%)	(0.01%)	(0.01%)	(0.01%)	(0.01%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.32%**	**25.32%**	**31.20%**	**19.03%**	**23.76%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.81%**	**25.81%**	**31.69%**	**19.45%**	**24.18%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Council of Governments

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$14,956,946	$13,844,273
Allocated pre-SLGRP pooled liability/(surplus)	(1,049,600)	(1,188,286)
Transition liability/(surplus)	(7,515)	(7,686)
Allocated pooled OPSRP UAL	1,194,421	1,027,656
Side account	0	0
Net unfunded pension actuarial accrued liability	15,094,252	13,675,957
Combined valuation payroll	6,937,766	7,228,670
Net pension UAL as a percentage of payroll	218%	189%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.01%)	(0.01%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($945)	$35,100
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$706,112	$123,428	17.55%	$820,385	$143,978
Tier 2 General Service	12.54%	848,534	106,406	12.26%	1,100,534	134,925
Total General Service		**1,554,646**	**229,834**		**1,920,919**	**278,903**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,554,646**	**$229,834**		**$1,920,919**	**$278,903**
Employer normal cost rate						
General Service			**14.78%**			**14.52%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**14.78%**			**14.52%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($7,686)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.01%)
B. Actual employer payroll	3,495,127
C. Payment to transition liability/(surplus)	(350)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.01%)
B. Actual employer payroll	3,458,548
C. Payment to transition liability/(surplus)	(345)
4. Supplemental payment to transition liability	0
5. Interest	(524)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($7,515)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(7,515)	(7,686)
2. Combined valuation payroll	6,937,766	7,228,670
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.01%)**	**(0.01%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	6,937,766	7,228,670
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Crescent Rural Fire Protection District/2834
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
Crescent Rural Fire Protection District/2834

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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November 2017
Crescent Rural Fire Protection District/2834

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Crescent Rural Fire Protection District -- #2834

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Crescent Rural Fire Protection District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Crescent Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Crescent Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.84%)	(1.84%)	(1.84%)	(1.84%)	(1.84%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.35%**	**25.23%**	**31.05%**	**18.88%**	**23.61%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**26.84%**	**25.72%**	**31.54%**	**19.30%**	**24.03%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Crescent Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$406,647	$236,177
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(31,284)	(31,806)
Allocated pooled OPSRP UAL	32,474	17,531
Side account	0	0
Net unfunded pension actuarial accrued liability	407,837	221,902
Combined valuation payroll	188,623	123,318
Net pension UAL as a percentage of payroll	216%	180%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.84%)	(2.71%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($26)	$599
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			**December 31, 2015**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($31,806)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.29%)
B. Actual employer payroll	106,578
C. Payment to transition liability/(surplus)	(1,375)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.29%)
B. Actual employer payroll	103,101
C. Payment to transition liability/(surplus)	(1,330)
4. Supplemental payment to transition liability	0
5. Interest	(2,183)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($31,284)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(31,284)	(31,806)
2. Combined valuation payroll	188,623	123,318
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.84%)**	**(2.71%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	188,623	123,318
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Crook County Rural Fire Protection District #1/2844
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Crook County Rural Fire Protection District #1/2844

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Crook County Rural Fire Protection District #1 -- #2844

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Crook County Rural Fire Protection District #1 to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Crook County Rural Fire Protection District #1.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Crook County Rural Fire Protection District #1

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.94%	12.54%	19.73%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.22%)	(0.22%)	(0.22%)	(0.22%)	(0.22%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.27%**	**22.87%**	**30.06%**	**18.82%**	**23.55%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**28.76%**	**23.36%**	**30.55%**	**19.24%**	**23.97%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Crook County Rural Fire Protection District #1

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$3,691,427	$3,282,640
Allocated pre-SLGRP pooled liability/(surplus)	(259,045)	(281,757)
Transition liability/(surplus)	(33,588)	(37,341)
Allocated pooled OPSRP UAL	294,787	243,669
Side account	0	0
Net unfunded pension actuarial accrued liability	3,693,581	3,207,211
Combined valuation payroll	1,712,265	1,714,003
Net pension UAL as a percentage of payroll	216%	187%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(0.22%)	(0.23%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($233)	$8,323
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	79,946	10,025	12.26%	75,157	9,214
Total General Service		**79,946**	**10,025**		**75,157**	**9,214**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	240,964	47,542	18.95%	346,409	65,645
Total Police & Fire		**240,964**	**47,542**		**346,409**	**65,645**
Total		**$320,910**	**$57,567**		**$421,566**	**$74,859**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**19.73%**			**18.95%**
Aggregate (Default)			**17.94%**			**17.76%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($37,341)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(0.35%)
B. Actual employer payroll	838,328
C. Payment to transition liability/(surplus)	(2,934)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(0.35%)
B. Actual employer payroll	903,582
C. Payment to transition liability/(surplus)	(3,162)
4. Supplemental payment to transition liability	0
5. Interest	(2,343)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($33,588)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(33,588)	(37,341)
2. Combined valuation payroll	1,712,265	1,714,003
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(0.22%)**	**(0.23%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,712,265	1,714,003
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Crook County/2044
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
Crook County/2044

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Crook County/2044

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Crook County -- #2044

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Crook County to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Crook County.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Crook County

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.66%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(8.54%)	(8.54%)	(8.54%)	(8.54%)	(8.54%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.35%**	**18.53%**	**24.35%**	**12.18%**	**16.91%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**24.84%**	**19.02%**	**24.84%**	**12.60%**	**17.33%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Crook County

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$3,519,647	$2,481,440
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,253,469)	(1,321,819)
Allocated pooled OPSRP UAL	281,069	184,197
Side account	0	0
Net unfunded pension actuarial accrued liability	2,547,247	1,343,818
Combined valuation payroll	1,632,585	1,295,663
Net pension UAL as a percentage of payroll	156%	104%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(8.54%)	(10.73%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($222)	$6,291
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	245,791	54,418	21.37%	230,042	49,160
Tier 2 Police & Fire	19.73%	394,489	77,833	18.95%	458,788	86,940
Total Police & Fire		**640,280**	**132,251**		**688,830**	**136,100**
Total		**$640,280**	**$132,251**		**$688,830**	**$136,100**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.76%**
Aggregate (Default)			**20.66%**			**19.76%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($1,321,819)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(10.29%)
B. Actual employer payroll	711,686
C. Payment to transition liability/(surplus)	(73,233)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(10.29%)
B. Actual employer payroll	802,415
C. Payment to transition liability/(surplus)	(82,568)
4. Supplemental payment to transition liability	0
5. Interest	(87,451)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,253,469)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(1,253,469)	(1,321,819)
2. Combined valuation payroll	1,632,585	1,295,663
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(8.54%)**	**(10.73%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	1,632,585	1,295,663
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Crooked River Ranch Rural Fire Protection District/2647
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Crooked River Ranch Rural Fire Protection District/2647

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Crooked River Ranch Rural Fire Protection District -- #2647

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Crooked River Ranch Rural Fire Protection District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Crooked River Ranch Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Crooked River Ranch Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.96%	14.84%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.16%)	(1.16%)	(1.16%)	(1.16%)	(1.16%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.35%**	**24.23%**	**30.05%**	**17.88%**	**22.61%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**25.84%**	**24.72%**	**30.54%**	**18.30%**	**23.03%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Crooked River Ranch Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$847,211	$484,870
Allocated pre-SLGRP pooled liability/(surplus)	(59,453)	(41,618)
Transition liability/(surplus)	(40,949)	(42,277)
Allocated pooled OPSRP UAL	67,656	35,992
Side account	0	0
Net unfunded pension actuarial accrued liability	814,465	436,967
Combined valuation payroll	392,978	253,171
Net pension UAL as a percentage of payroll	207%	173%
Pre-SLGRP pooled rate	(1.68%)	(1.73%)
Transition rate	(1.16%)	(1.76%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($54)	$1,229
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	0	0	12.26%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.84%**			**14.81%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**15.96%**			**15.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($42,277)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(1.36%)
B. Actual employer payroll	145,866
C. Payment to transition liability/(surplus)	(1,984)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(1.36%)
B. Actual employer payroll	161,871
C. Payment to transition liability/(surplus)	(2,201)
4. Supplemental payment to transition liability	0
5. Interest	(2,857)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($40,949)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	**December 31, 2015**
1. Total transition liability/(surplus)	(40,949)	(42,277)
2. Combined valuation payroll	392,978	253,171
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.16%)**	**(1.76%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	392,978	253,171
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Crystal Springs Water District/2571
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

November 2017
Crystal Springs Water District/2571

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Crystal Springs Water District -- #2571

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Crystal Springs Water District to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Crystal Springs Water District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Crystal Springs Water District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.44%)	(1.44%)	(1.44%)	(1.44%)	(1.44%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.33%**	**23.33%**	**31.45%**	**19.28%**	**24.01%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**23.82%**	**23.82%**	**31.94%**	**19.70%**	**24.43%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Crystal Springs Water District

	Actuarial Valuation as of	
	December 31, 2016	**December 31, 2015**
Allocated pooled SLGRP T1/T2 UAL	$820,461	$620,253
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(49,390)	(55,356)
Allocated pooled OPSRP UAL	65,520	46,041
Side account	0	0
Net unfunded pension actuarial accrued liability	836,591	610,938
Combined valuation payroll	380,570	323,860
Net pension UAL as a percentage of payroll	220%	189%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.44%)	(1.80%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($52)	$1,573
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	120,524	15,114	12.26%	115,290	14,135
Total General Service		**120,524**	**15,114**		**115,290**	**14,135**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$120,524**	**$15,114**		**$115,290**	**$14,135**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($55,356)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(2.82%)
B. Actual employer payroll	157,020
C. Payment to transition liability/(surplus)	(4,428)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(2.82%)
B. Actual employer payroll	176,740
C. Payment to transition liability/(surplus)	(4,984)
4. Supplemental payment to transition liability	0
5. Interest	(3,446)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($49,390)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(49,390)	(55,356)
2. Combined valuation payroll	380,570	323,860
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(1.44%)**	**(1.80%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	380,570	323,860
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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November 2017

Curry Library/2718
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2016. Information is also provided to assist you in preparing your required financial reporting disclosures under Statement 45 of the Governmental Accounting Standards Board. GASB 68 information will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2019 through June 30, 2021 will be calculated in the December 31, 2017 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2016. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll,
- Information to assist you in completing GASB 45 financial reporting requirements, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

November 2017
Curry Library/2718

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

Some of the actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2019 to June 2021 for System employers. Other actuarial computations presented in this report under GASB Statement No. 45 are for purposes of assisting System employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the System benefit provisions described in the appendixes of this report, and of GASB Statement No. 45. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

November 2017
Curry Library/2718

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Curry Library -- #2718

November 2017

CONTENTS

Executive Summary

Milliman has prepared this report for Curry Library to:

- Provide summary December 31, 2016 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2016, on estimated employer-specific contribution rates effective July 1, 2019 through June 30, 2021,
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2016, and
- Provide reporting and disclosure information for financial statements for governmental agencies and pursuant to GASB Statement Number 45.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2016 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Curry Library.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2016 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2019 - 2021 Employer Rates Calculated as of December 31, 2016 for Curry Library

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.54%	12.54%	20.66%	8.49%	13.22%
Tier 1/Tier 2 UAL rate[1]	10.67%	10.67%	10.67%	10.67%	10.67%
OPSRP UAL rate	1.56%	1.56%	1.56%	1.56%	1.56%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(16.61%)	(16.61%)	(16.61%)	(16.61%)	(16.61%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**8.16%**	**8.16%**	**16.28%**	**4.11%**	**8.84%**
Retiree Healthcare					
Normal cost rate	0.07%	0.07%	0.07%	0.00%	0.00%
UAL rate	0.42%	0.42%	0.42%	0.42%	0.42%
Net retiree healthcare rate	**0.49%**	**0.49%**	**0.49%**	**0.42%**	**0.42%**
Total net employer contribution rate	**8.65%**	**8.65%**	**16.77%**	**4.53%**	**9.26%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2019 to June 2021 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2019, which will depend on the funded status as of December 31, 2017. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2016 is 69%.

Funded Status as of December 31, 2017	70% to 130%	Under 60% or Over 140%
2017-2019 Normal Cost + Tier 1/Tier 2 UAL Rate	21.88%	21.88%
Minimum 2019-2021 Rate	17.50%	13.12%
Maximum 2019-2021 Rate	26.26%	30.64%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Executive Summary

Accounting Information (continued)

Retiree Healthcare

The Retiree Health Insurance Account (RHIA) and the Retiree Health Insurance Premium Account (RHIPA) are cost-sharing pools under GASB 45. The contractually required contribution for retiree healthcare liabilities for the period July 1, 2017 through June 30, 2019 were calculated as a part of the December 31, 2015 valuation, and is expressed as contribution rates that are applied to the appropriate payroll. The rates and appropriate payroll are shown in the table below.

Contractually Required Contribution Rate

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
RHIA July 1, 2015 to June 30, 2017	0.53%	0.45%	0.45%
RHIPA July 1, 2015 to June 30, 2017	0.00%	0.00%	0.00%
RHIA July 1, 2017 to June 30, 2019	0.50%	0.43%	0.43%
RHIPA July 1, 2017 to June 30, 2019	0.00%	0.00%	0.00%

In June 2015, the GASB issued Statement 75, which will replace GASB 45 and govern employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

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	Actuarial Valuation as of	
	December 31, 2016	December 31, 2015
Allocated pooled SLGRP T1/T2 UAL	$320,848	$265,895
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(222,332)	(225,386)
Allocated pooled OPSRP UAL	25,622	19,737
Side account	0	0
Net unfunded pension actuarial accrued liability	124,138	60,246
Combined valuation payroll	148,825	138,835
Net pension UAL as a percentage of payroll	83%	43%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(16.61%)	(17.08%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($20)	$674
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2016	Actuarial Valuation as of December 31, 2015
Normal cost	$406.5	$424.9
Tier 1/Tier 2 valuation payroll	2,546.7	2,691.8
Normal cost rate	15.96%	15.78%
Actuarial accrued liability	$40,351.3	$38,396.8
Actuarial asset value	28,032.6	27,682.7
Unfunded actuarial accrued liability	12,318.7	10,714.1
Funded status	69%	72%
Combined valuation payroll	$5,714.0	$5,594.3
UAL as a percentage of payroll	216%	192%
UAL rate[1]	10.67%	6.03%
State and Community College Pre-SLGRP Pooled Liability	$514.0	$539.5
LGRP Pooled Liability	(218.6)	(229.0)
Total Transition Liability	(682.3)	(748.8)
Tier 1/Tier 2 Active Members		
▪ Count	33,769	36,608
▪ Average Age	53.2	52.8
▪ Average Service	20.0	19.3
▪ Average Valuation Payroll	$75,416	$73,529
Tier 1/Tier 2 Dormant Members		
▪ Count	19,703	19,558
▪ Average Age	55.9	55.3
▪ Average Monthly Benefit	$1,334	$1,309
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	81,449	80,040
▪ Average Age	71.1	70.7
▪ Average Monthly Benefit	$2,162	$2,109

[1] *The December 31, 2016 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2015). The City of Portland pays an additional 1.11% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.12% and 0.15% respectively at December 31, 2015).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2016**	**December 31, 2015**
General service normal cost	$402.9	$342.2
OPSRP general service valuation payroll	4,746.4	4,266.9
General service normal cost rate	8.49%	8.02%
Police and fire normal cost	$80.6	$69.9
OPSRP police and fire valuation payroll	609.4	546.4
Police and fire normal cost rate	13.22%	12.79%
Actuarial accrued liability	$4,717.0	$3,742.5
Actuarial asset value	3,021.4	2,389.1
Unfunded actuarial accrued liability	1,695.6	1,353.5
Funded status	64%	64%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	17%	14%
UAL rate	1.56%	1.27%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$3.0	$3.3
Tier 1 / Tier 2 valuation payroll	4,516.7	4,730.8
Normal cost rate	0.07%	0.07%
Actuarial accrued liability	$463.7	$465.6
Actuarial asset value	465.0	419.3
Unfunded actuarial accrued liability	(1.3)	46.3
Funded status	100%	90%
Combined valuation payroll	$9,872.6	$9,544.1
UAL as a percentage of payroll	0%	0%
UAL rate	0.42%	0.43%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2016	December 31, 2015
Normal cost	$1.5	$1.5
Tier 1 / Tier 2 valuation payroll	1,276.0	1,339.4
Normal cost rate	0.12%	0.11%
Actuarial accrued liability	$67.9	$67.8
Actuarial asset value	19.1	11.2
Unfunded actuarial accrued liability	48.8	56.6
Funded status	28%	16%
Combined valuation payroll	$2,881.4	$2,831.8
UAL as a percentage of payroll	2%	2%
UAL rate	0.38%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2016			December 31, 2015		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.48%	$0	$0	17.55%	$0	$0
Tier 2 General Service	12.54%	31,758	3,982	12.26%	30,059	3,685
Total General Service		**31,758**	**3,982**		**30,059**	**3,685**
Tier 1 Police & Fire	22.14%	0	0	21.37%	0	0
Tier 2 Police & Fire	19.73%	0	0	18.95%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$31,758**	**$3,982**		**$30,059**	**$3,685**
Employer normal cost rate						
General Service			**12.54%**			**12.26%**
Police & Fire			**20.66%**			**19.94%**
Aggregate (Default)			**12.54%**			**12.26%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2015	($225,386)
2. January 1, 2016 through June 30, 2016	
A. Transition liability/(surplus) rate[1]	(15.68%)
B. Actual employer payroll	67,474
C. Payment to transition liability/(surplus)	(8,876)
3. July 1, 2016 through December 31, 2016	
A. Transition liability/(surplus) rate[1]	(15.68%)
B. Actual employer payroll	73,821
C. Payment to transition liability/(surplus)	(9,690)
4. Supplemental payment to transition liability	0
5. Interest	(15,512)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2016	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($222,332)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2016	December 31, 2015
1. Total transition liability/(surplus)	(222,332)	(225,386)
2. Combined valuation payroll	148,825	138,835
3. Regular amortization factor	8.994	9.504
4. **Total transition liability/(surplus) rate**	**(16.61%)**	**(17.08%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	**Continuing**	**Total**
1. Side account as of December 31, 2015	**N/A**		
2. Deposits during 2016		N/A	
3. Administrative expenses			
4. Amount transferred to employer reserves during 2016			
5. Side account earnings during 2016			
6. Side account as of December 31, 2016 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2016	December 31, 2015
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2016	December 31, 2015
1. Total side account	$0	$0
2. Combined valuation payroll	148,825	138,835
3. Average amortization factor	8.994	9.504
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2016 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.5% in 2017 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2015 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Valuation Procedures

- **Allocation of Liability for Service Segments**

For allocating Tier 1/Tier 2 liability among multiple employers, the weighting between Money Match and Full Formula methodologies was updated to reflect expected future experience.

Changes in Economic Assumptions

- **Investment Return and Interest Crediting**

  The assumed investment return and interest crediting to both regular and variable account balances was reduced to 7.20%. Previously, the assumed investment return and interest crediting to both regular and variable account balances was 7.50%.

- **Administrative Expenses**

  Administrative expenses were assumed to be $6.5 million per year for the OPSRP System and $37.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  Mortality assumption uses RP-2014 base tables and mortality improvement scale based on 60-year unisex average Social Security experience.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2016 actuarial valuation is contained in the system-wide report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2015 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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